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THE USE AND REGULATION OF LAWN CARE CHEMICALS

HEARING

BEFORE THE

SUBCOMMITTEE ON
TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,
RESEARCH AND DEVELOPMENT

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

ON

THE USE AND REGULATION OF LAWN CARE CHEMICALS

MARCH 28, 1990

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THE USE AND REGULATION OF LAWN CARE CHEMICALS

WEDNESDAY, MARCH 28, 1990

U.S. SENATE, COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:35 a.m., in room 216, Hart Senate Office Building, Hon. Harry Reid (chairman of the subcommittee) presiding.

Present: Senators Reid, Lieberman, and Warner.

OPENING STATEMENT OF HON. HARRY REID, U.S. SENATOR FROM THE STATE OF NEVADA

Senator REID. The subcommittee will come to order.

Ladies and gentlemen, the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development will hear testimony today about the use and regulation of lawn chemicals. This, we believe, is a very timely subject. All across the country, people will soon begin work on their lawns. Homeowners already are being bombarded with TV advertising and other types of advertising from lawn care companies.

We believe it is vital that the American people be assured that lawn care products are safe or else are made fully aware of the threat to human health posed by many of these products.

Unfortunately, it does not appear that the American people can be given the assurance they need, nor are they made aware of the dangers to human health from lawn pesticides. A report by the General Accounting Office, which will be released after this hearing, highlights problems in the EPA's regulation of lawn chemicals and the misleading claim by advertisers that lawn chemicals are always safe.

Lawn care in the United States is a big business. In 1987, for example, the lawn care industry grossed $1.5 billion in sales when over 7 million Americans bought their services.

To insure that their clients received picture-perfect lawns, many lawn care companies use chemical pesticides. Some indication of the increased use of lawn chemicals has recently been provided by the National Academy of Sciences. In a report, the Academy noted that although pesticides are used more widely on agricultural land than on lawns, those caring for lawns tend to use up to 10 times more per acre of toxic chemicals.

What once was done through human labor is now done by workers wearing protective clothing and using chemical sprays, or more precisely, lawn care is being done by workers who should be wearing protective clothing. Remember, lawn chemicals by their very design are dangerous. Pesticides are designed to kill. What kills garden pests and weeds can also have an adverse effect on people.

Concern has been expressed that some of the chemicals used in lawn care may cause cancer, nerve damage, liver and kidney damage, birth defects and even death. More immediately, such chemicals may also cause headaches, skin rashes, eye irritation, nausea, and vomiting.

The fact that some chemicals used in lawn care may have adverse health effects on people raises a number of important issues.

First, the American people need to be assured that lawn chemicals are safe. They need to be assured that the EPA is doing its job in assessing the toxicity of lawn pesticides. Unfortunately, the Environmental Protection Agency does not appear to have given very high priority to testing lawn care chemicals.

The report by the General Accounting Office states that "EPA has not completely reassessed the health risks of any of the major lawn care pesticides subject to registration," under the FIFRA amendments of 1988. I believe this is simply inexcusable and really unacceptable.

Second, when people hire lawn care companies which advertise their services as safe or harmless, or when they buy lawn chemicals similarly described, they should be confident that those claims are accurate. Unfortunately, this does not seem to be the case. The General Accounting Office has reported that "reviewing and enforcing pesticide advertising receives less attention now than before." In short, the EPA has apparently not given a very high priority to determine whether safety claims made by lawn care companies are accurate.

Third, lawn care workers who apply pesticides need to be assured the work they do is safe. They need to be informed when the chemicals they use might have adverse health effects and to be issued appropriate protective clothing when they are not. How many of the lawn care workers we see each summer dressed only in shorts and tee-shirts are knowingly putting their health at risk?

Fourth, when lawn care companies are working on lawns close to public roads and sidewalks, the safety of the people walking by also needs to be assured. Such passersby need to be informed that pesticides are being used in that environment. Again, how many men, women and children have suffered an adverse health effect after walking past a lawn that's being sprayed with pesticides?

Ladies and gentlemen, these are some of the important questions. It is the purpose of this hearing to arrive at some answers. Clearly, Congress and the Bush Administration must work together to devise a strategy of enforcement that protects people's lives and health from the potential dangers of lawn chemicals by making better use of the Environmental Protection Agency's resources. This agency should be actively promoting the development and use of alternate methods of lawn care.

Today we will hear evidence from the General Accounting Office, the Environmental Protection Agency, health experts, environmen-

tal groups, major users of lawn care chemicals, lawn care companies, and pesticide manufacturers.

I would particularly like to welcome Kevin Ryan, an 11-year-old boy from Illinois who is going to talk about health problems that he has experienced due to exposure to lawn pesticides.

Again, I'd like to welcome everyone here today. I am especially thankful that my colleague, Senator Lieberman, is here. He has been very active, since coming to the Senate, in areas relating to the care and health of people, especially young people. I am grateful that you are here today, Senator Lieberman.

OPENING STATEMENT OF HON. JOSEPH I. LIEBERMAN, U.S. SENATOR FROM THE STATE OF CONNECTICUT

Senator LIEBERMAN. Thank you, Mr. Chairman. Thank you for your kind words and thank you for your leadership of this committee on behalf of American consumers and their health and safety.

Mr. Chairman, as you indicated, it is springtime in America and millions of Americans are getting ready to put millions of pounds of chemicals on their lawns to kill weeds and bugs and to make the grass grow thicker and greener. Sometimes people hire professional lawn care companies to do the job, sometimes they go down to the local hardware store, buy sprays and powders and do it themselves.

The sale of lawn care products and services, as you indicated, is a multi-billion dollar business in this country today. But in our quest for better lawn care, I think we have to ask today are we ending up with worse health care?

What is the effect of all of these chemicals on groundwater, on our pets, on our families? I think the answer, quite simply, is that we do not know, but we do know this: In some cases, lawn care chemicals are toxic to fish, animals, and other wildlife, and, in some cases, lawn care chemicals are clearly toxic to humans as well. In some cases, one of which we will hear about today, lawn care chemicals can kill people.

This is not wild talk from radical groups. As I review the facts, this is the truth. We have here today witnesses who will testify to the effects of lawn care chemicals on their bodies.

Too many of the makers of these chemicals, I'm afraid, the purveyors of lawn care services, have been irresponsible in dealing with the risks associated with these products. I am sorry to say that the Government has been derelict in its duty to protect the public interest.

That, again, is not a conclusion of some extreme group or just my personal conclusion. The way I read it, that is a conclusion of the General Accounting Office whose report we will hear and examine today.

The GAO says that we have too little information about most of the widely used lawn chemicals to say that they are safe for people. Yet all of them are sold with the words, "EPA Registered" right on the label. I don't think any of them that I've seen is sold with adequate warnings about their potential health risks.

In some cases we do know that a lawn chemical is hazardous to humans, or at least components of it are. 2,4-D is one of the most widely used chemicals and there are two studies by the National

Cancer Institute which have found that it has increased the risk of cancer in wheat farmers who apply it to their crops. We will have testimony to that effect today.

The EPA Office of Research and Development has recommended that 2,4-D be classified as a probable human carcinogen but when you go to a hardware store and buy a lawn care product with 2,4-D, as my staff did last week, the bottle only says—incidentally, it says it in print that is one-sixteenth of an inch high—"Harmful if absorbed through the skin. May cause eye irritation."

I think what it should say, and in very big letters right on the front, is a warning: "National Cancer Institute studies indicate that this chemical may cause cancer in those who apply it."

There is another product—I think I'm pronouncing it correctly—Daconil, that says "This product is toxic to fish." What about humans? In fact, this chemical has been classified as a probable human carcinogen. It seems to be the chemical that killed Lt. George Prior on a golf course in Maryland, but you certainly wouldn't know that from reading the label on this bottle.

The company spends a lot of time listing all the diseases that Daconil can cause in plants but there is no listing of any diseases that it can cause in humans.

This is Diazinon, also toxic to fish. This is so-called Garden Dust and this one really outraged me because it has a warning on the bottom that says "Do Not Use on Pregnant Dogs." What about pregnant people? I gather that it gives that warning because in laboratory tests, this has caused mutations in offspring of pregnant dogs.

I can't say that it would cause a similar problem in humans but I'd like to have known that because that's why those laboratory tests were conducted. I'd like to certainly keep any friends or relatives of mine who are pregnant away from this stuff.

The EPA is, in fact, way behind in checking on the safety of dozens of chemicals that are applied to the lawns of millions of Americans. Some chemicals were first registered with the Government as long ago as 1948 and have never been properly reassessed since then.

When it comes to assessing the danger of these chemicals, I think as we found in pesticides in the food supply, the shoe is on the wrong foot. Here again, the Government has to prove that these chemicals can harm humans instead of having the companies be the ones to prove that they will not harm humans.

Unfortunately, the GAO report also tells us that the problem goes beyond adequate testing and labeling. There are ads in magazines and promotional pictures by professional lawn care companies that describe lawn pesticides as safe, non-toxic and environmentally sound, which in some cases I really don't think they are.

Here is a Chemlawn brochure—this is a very prominent company—and there is a sentence in this brochure that says "The pesticides that we may include have passed scientific review of their safety and effectiveness and are registered by their manufacturers with the United States Environmental Protection Agency." Well, it may be that the company has done tests of their safety and effectiveness, but the fact that they are registered with the U.S. Environmental Protection Agency gives us no guarantee of that at all.

As a former Attorney General, and we are going to hear from one of my colleagues, one of the great attorney generals in the U.S., Bob Abrams of New York, to me this looks a lot like advertising that is deceptive.

The GAO report tells us that neither the EPA nor the FTC have taken effective action against any of these companies over their advertising.

After reading the GAO report, I conclude that EPA and FTC must be more aggressive in going after companies who print misleading labels, brochures and advertising and in targeting lawn care providers who don't tell customers the whole truth about the products they apply to their lawns.

Finally, Mr. Chairman, I think we have to do more to protect those many Americans who may be unusually allergic to the toxins in lawn pesticides. Just by word of mouth, some of them have heard about our investigation of lawn chemicals. I know we have already received dozens of letters from people around the country telling us about their problems with these chemicals.

People who may be exposed to them on their own lawns or on their neighbor's, I think as you said, deserve to be warned that chemicals will be applied and what those chemicals are. Good fences may make good neighbors, but fences mean nothing to a toxin spray. Good laws can help make healthy neighbors. I know we are going to explore today what kinds of laws we should think about passing.

Mr. Chairman, I thank you for convening this hearing. We have a lot of witnesses today. It is going to be a long day but it's going to be an important and I appreciate your leadership in this matter.

Senator REID. Senator Lieberman, thank you very much for your input in helping prepare the hearing.

We would ask Peter Guerrero, the Associate Director, Environmental Protection Issues from the General Accounting Office, to come forward. Mr. Guerrero, we have your statement and we would ask that you summarize it, if you could, please. We'd make your statement part of the record.

I would like to take just a minute to acknowledge receipt of a statement from Senator Jeffords who is unable to attend today's hearing. We will include that statement in the reocord.

[The statement referred to follows:]

STATEMENT OF HON. JAMES M. JEFFORDS, U.S. SENATOR FROM THE STATE OF VERMONT

Mr. Chairman, I am pleased that you and Senator Lieberman have taken the initiative to hold this hearing to assess the health and environmental implications of yard care products. The use of these products has grown tremendously, while the knowledge of their effects and enforcement of their regulation may not have kept up to pace.

During the 1980's the lawn care industry doubled, with total sales now estimated at over $1.5 billion annually. Lawn care companies are growing in both size and number as Americans try to create the "perfect" lawn. Yet the cost to human health and the environment of creating these lawns is unknown, and without this knowledge we cannot profess to be effectively protecting Americans from potentially dangerous chemicals.

Past Congresses have tried to address these issues through amendments to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), originally passed in 1947 to control the use of pesticides used in agriculture. This law required the regis-

tration of labels of pesticides with the Department of Agriculture. with much of this authority being transferred to the Environmental Protection Agency with its creation in 1970.

Amendments to FIFRA in 1972 expanded EPA's role as regulator of pesticides by giving the Agency direct control of the use of pesticides and adding environmental effects as a concern to be considered during the registration process. EPA was also required to re-test, or re-register a number of pesticides that were not initially tested for long term health effects. While the goal of these amendments was to strengthen the regulation of pesticides, EPA was unable to effectively carry out its pesticide program, prompting Congress to pass the Federal Pesticide Act of 1978 designed to stremline the registration process.

During the 100th Congress, we again addressed this issue and passed FIFRA amendments. These amendments established a nine year time frame for reregistration of pesticides in an attempt to expedite the reregistration of pesticides in an attempt to expedite the reregistration process. Still, with all this action, we have been unable to establish an effective monitoring and enforcement system.

I am hopeful that this hearing today will help is in designing a regulatory system that works effectively and outlines a clear enforcement pattern. A common concern echoed in this field is the lack of information that exists concerning the effects of these chemicals. Without this information, individuals who come in contact with these pesticides may not be fully aware of the risk they are taking.

Mr. Chairman, much of the concern that has prompted this hearing involves accusations of misleading claims made by the lawn chemicals industry on labels and in advertising. For this reason, I look forward to the testimony of the Government Accounting Office in conjunction with their report on the risks of lawn chemicals and safety claims.

In a previous 1986 report, the GAO concluded that through claims by industry officials, the public was receiving misleading information about the risk of these chemicals. They also stated that EPA had taken few steps to enforce civil penalties against these claims. With these conclusions, GAO recommended that EPA strengthen and improve its enforcement actions against these claims.

The present system of regulations under which EPA operates may not allow improvement of their pesticide enforcement program. Furthermore, without adequate information about these chemicals, we cannot expect effective regulations to exist. All this makes it difficult to regulate how these products are presented to the public.

Today we must begin to find ways to ensure public safety in the use of lawn pesticides. If present laws do not allow the EPA to effectively enforce penalties against false claims, then they must be changed. If EPA is not properly carrying out its requirements under the 1988 FIFRA amendments, then we must find out why. Our underlying concern and mandate must be the protection of public health and the environment.

My home state of Vermont has taken steps to control the commercial application of lawn chemicals. It is one of only five states the has a recording system created to monitor pesticide use by commercial lawn care companies. It is also one of only ten states that require these companies to supply information to customers about the pesticides being used.

Mr. Chairman, I am not convinced that regulation of commercially available lawn and garden pesticides has kept pace with their product modification and increasing use. Federal enforcement of current laws may be inadequate to protect consumers from illegal claims or practices. I'm not sure we know enough about the health risk associated with isolated and repeated use of these products. I am concerned that these products, in the aggregate, may represent a significant source of nonpoint source pollution that has not been fully analyzed.

This hearing will enhance the process of finding the best way to garner the necessary scientific data and require the proper regulations. I commend the Chairman for his efforts in holding this hearing.

Senator REID. Please begin Mr. Guerrero.

STATEMENT OF PETER GUERRERO, ASSOCIATE DIRECTOR, ENVIRONMENTAL PROTECTION ISSUES, GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY KEVIN DONOHUE, ASSISTANT DIRECTOR; CAROL RUCHALA, EVALUATOR-IN-CHARGE; AND PEG REESE, ASSIGNMENT MANAGER

Mr. GUERRERO. Thank you, Mr. Chairman.

With me also today is Kevin Donohue on my left, the Assistant Director in charge of our pesticides work and on my right, Carol Ruchala and Peg Reese, Principal Investigators on this work.

I will summarize my statement in the interest of saving you and the subcommittee's time in your lengthy agenda to hear this issue out today. My written remarks have been submitted for the record.

We appreciate the opportunity to be here today to discuss your concerns that the health risks of lawn care pesticides have not been fully assessed and that the pesticides industry is making prohibited claims for its products that EPA considers to be false and misleading.

Professional lawn care business has developed into a billion dollar industry over the last decade. The demand for these services is still growing. EPA estimates that as many as 11 percent of single family households use professional lawn care services. Some 67 million pounds of lawn care pesticides are applied each year. In addition to lawns, they are used in such places as gardens, parks and on golf courses. Because lawn care pesticides are designed to destroy or control living things, exposure to them can be hazardous.

Nearly four years ago, we reported to you on EPA's lack of progress in assessing the chronic health risks associated with these pesticides and on the limited Federal monitoring and enforcement being taken against safety advertising claims made by pesticide manufacturers, distributors and applicators.

Not much has changed since then. EPA continues to make only limited progress in assessing the health and environmental risks of these pesticides. In addition, prohibited pesticide advertising claims that EPA classifies as false and misleading are still being made by the lawn care industry. Yet EPA has taken even fewer formal enforcement actions in recent years than it did during 1984 and 1985, the period of our earlier review.

In our current report, we determined that 32 of 34 major lawn care pesticides have not been fully assessed for their long term health and environmental effects. Until EPA completes the assessment in a process called "reregistration" and takes appropriate regulatory action, the public may be at risk from exposure to them.

EPA may also subject certain pesticides to a special review of the risks and benefits of their continued use when there are particular concerns about their health and environmental effects. Six lawn care pesticides have undergone or may require such reviews. Two of these pesticides, diazinon and 2,4-D are among the most widely used lawn care pesticides.

EPA subjected the insecticide diazinon to a special review when it found it was killing water fowl and other birds. As a result, EPA cancelled the use of diazinon on golf courses and sod farms, imposed labeling requirements for other uses in order to provide information and protection to consumers. Also it has restricted Dia-

zinon's commercial outdoor uses on agricultural crops, for example, allowing only certified applicators or persons under their direct supervision to apply the pesticide. This restriction, however, does not apply to commercial lawn care companies.

EPA has called for additional toxicity testing with regard to Diazinon's effects on human health but until these data are received, Diazinon's use on lawns will raise uncertainties about its risks to humans.

2,4-D is an ingredient in more than 1500 pesticide products. It is a weed killer that has been used extensively by farmers and home gardeners for over 40 years. Based on evidence of increased cancer risk among farmers handling similar types of herbicides, EPA has been considering, since 1986, whether to place 2,4-D in special review. A decision will not be made until late summer upon completion and review of two epidemiological studies.

EPA has also called for additional laboratory testing for birth defects and other potential health effects for which adequate data are currently unavailable. These tests could require up to 4 years to complete.

Given the continuing uncertainty over the health and environmental risks of the lawn care pesticides, and EPA's particular concerns about those pesticides undergoing special review, we believe it is all the more important that the public be protected from pesticide advertisements that convey the false impression of safety. Yet the pesticides industry continues to make advertising claims that its products are safe or nontoxic and both EPA and the Federal Trade Commission are doing very little to deter such prohibited safety claims.

Both EPA and FTC have authority over pesticide advertising by manufacturers and distributors but only FTC has enforcement authority over the safety claim by applicators, including lawn care companies.

In the 10 years prior to 1986, FTC took only about three pesticide actions. Since that time, FTC has initiated 11 investigations, most of which involve effectiveness claims. None involve lawn care pesticides and generally FTC prefers to defer to EPA in these matters because it considers EPA to be the technical expert.

For its part, EPA does not monitor advertising claims of the pesticides industry but only reacts to complaints. Since our earlier report, EPA has taken few formal enforcement actions against unacceptable pesticide safety advertising claims. In our previous work, we found that EPA took 18 civil penalty actions over a 19-month period. EPA's current record is even less impressive, 17 actions over a 36-month period. Only one of these involved a lawn care pesticide.

As part of its study, GAO phoned lawn care companies and solicited brochures and information to try, on its own, to determine the extent of this problem. With very little effort, GAO found a number of prohibited safety claims such as this one from a lawn care company brochure, "Applications are selectively toxic to weeds and insects. A child would have to swallow the amount of pesticide found in almost ten cups of treated lawn clippings to equal the toxicity of one baby aspirin." When we asked EPA to

review this and other claims, EPA found that many of those were false and misleading.

In our report, we recommended that EPA take the following actions. Because EPA does not have the authority over pesticide applicator claims, and since FTC which does prefers to defer to EPA because of EPA's technical expertise, EPA should seek legislative authority over safety claims by pesticide applicators.

Also, EPA should enforce their first prohibition on false and misleading pesticide safety claims. In doing so, it should have a strategy that among other things, it actively seeks to identify these problems rather than waiting for the public to bring them to its attention.

In conclusion, as we testified last May before this subcommittee, the expeditious reregistration of pesticides is of paramount importance for reducing the uncertainty surrounding their use. We stated, however, that EPA has made some progress in this regard but it still has much more to do.

We continue to believe that while the 1988 FIFRA amendments can help speed the reregistration process, reregistering pesticides and reassessing their risks remain a formidable task for EPA.

In the interim, the public's health may be at risk from exposure to these pesticides. Additionally, we believe that without an effective, credible Federal enforcement effort, the lawn care pesticide industry will continue to make prohibited safety claims that EPA classifies as false and misleading, leading consumers to believe that the pesticides applied around the homes are safe or nontoxic.

Mr. Chairman, this concludes my statement and I would be pleased to answer any questions you may have.

Senator REID. Mr. Guerrero, I appreciate very much your testimony and the report that has been prepared. I reviewed it in very close detail and I find it well-written, concise and to the point.

I frankly don't know what we would do without the General Accounting Office. I say that very seriously. Because of the jurisdiction of this subcommittee dealing with asbestos, dealing with lead poisoning, now lawn chemicals, we deal in subjects that directly affect people and without, in this instance the General Accounting Office looking into what we have been given in bits and pieces, I think we'd have an incomplete picture.

After this hearing, Senator Lieberman and I, and the rest of the subcommittee, will be accused of frightening the public just as happens with the alar scare, with the lead poisoning hearings that we held.

I don't know what has happened in Connecticut—I have had editorials written saying Reid shouldn't be involved in lead poisoning cases, he's just trying to frighten people in Nevada, so these are issues that have been neglected for a long time.

We are going to have testimony here today that I think is going to get people's attention but the attention will be buttressed by the fact that you and your associates have prepared this very fine report. I think that we have to acknowledge and you have briefly stated some of the claims made by these products—"Our products are practically nontoxin, no one gets sick." "All of our products are legal and registered at EPA as practically nontoxic." "The only way to be affected by the pesticide 2,4-D would be to lay in it for a

few days." "The safety issue has been blown out of proportion. Such a small amount of chemicals are put down directly on plants. They do not affect animals or people." "All chemicals are non-toxic." "Dogs may get a rash or irritated, but they will only feel a little itchy." This is the same reaction the applicator gets when the pesticide touches their skin.

What we are going to do, because this committee has jurisdiction over the Environmental Protection Agency, and you have suggested the Environmental Protection Agency come forward and ask for more legal authority to do a better job, well, we are going to all be doing some other job before they come forward and ask for more work to do. They simply are not going to do that. Therefore, it is incumbent upon us to give them that responsibility, to mandate that responsibility.

I think that the Federal Trade Commission should be involved in these issues. We have them spending a lot of time on issues that to me and the public seem relatively unimportant advertising claims. Those claims effect the way people make money. These claims affect the way the people breathe and their health generally. I think the Federal Trade Commission, using the excuse they don't have the expertise to get involved in it, I think they should and leave some of the other professional groups alone and spend a little time here.

How difficult was it for you, the General Accounting Office, to find out about some of these claims that are made?

Mr. GUERRERO. It was quite easy, Mr. Chairman. First, let me thank you for your compliments on the work we've done and also observe that EPA had earlier done a survey to find out how people received information about pesticide risk. Did they in fact read the labels? EPA found that 50 percent of the public that used pesticide products, did not read the warnings, precautions, et cetera on the pesticide labels.

Therefore the safety and advertising claims that are made in magazines and over the phone when individuals call lawn care companies to find out more information and so forth, are of vital importance because that is indeed the public's assurance as to whether these products are safe to use, and under what conditions and circumstances.

We found it quite easy, in answer to your question, to identify a number of claims both in advertisements and in brochures. When we presented those claims to EPA for them to apply their criteria on their FIFRA Section 12 as to whether such claims would be permissible, they found those claims to be false and misleading.

We simply sent our staff to the Department of Agriculture's reading room in the library. They pulled off the shelf magazines that growers, farmers, horticulturalists and others would routinely read for information on plants and materials. Thumbing through those we found numerous instances where there were false assurances of safety for these products.

We called approximately 20 lawn care companies in the Washington Metropolitan Area, ten of those we also received lawn care company brochures from. Many of them made representations over the phone such as those you've just read, providing assurance of safety for their products and services. We found that two of the ten

brochures also contained statements that EPA would consider to be false and misleading.

Senator REID. Since it was so easy for you, we've also established that EPA doesn't do a great deal to monitor advertising claims and that certainly is an understatement. Let me see if I understand.

The Federal Trade Commission has the authority over pesticide advertising by these lawn care companies but hasn't taken any enforcement action. EPA, maybe they don't have the authority, so in effect, no one is enforcing safety advertising claims made by the lawn care industry?

Mr. GUERRERO. That's essentially true, Mr. Chairman.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

I echo your praise of GAO. I think, again, this is an excellent report, very credible and gives us justification to go forward and ask the questions we are asking. I just want to go over a few points that you've mentioned just to bring out the extent of the problem.

You and I both talked a couple of times about Diazinon and I have a bottle of it here that I looked at before. You pointed out, am I correct, that there are studies that show it has been fatal to water fowl?

Mr. GUERRERO. That's correct.

Senator LIEBERMAN. What puzzled me, and maybe you can help me, you referred to it briefly, the result of those studies I presume leads the manufacturer to put on the label "This product must not be used on golf courses and sod farms." It takes some difficulty in seeing that but at least it's right under the title of the product, but there is no suggestion, at least here, that it may also be a problem for normal home lawn care. If it kills birds on a golf course, why shouldn't I worry about it having the same effect on birds on my lawn or on my infant as she goes around the lawn feeling the lawn, using her hands in the dirt?

Mr. GUERRERO. Senator, yesterday I raised the same question with my staff. I have a hard time also understanding that distinction.

When EPA first proposed restricting the use of Diazinon, it did initially consider restricting it for household use. One of the problems associated with Diazinon not only involved killing water fowl but also it caused irreversible eye damage.

Senator LIEBERMAN. In humans, you mean?

Mr. GUERRERO. In humans. As I said, EPA found in earlier work that 50 percent of the consuming public doesn't read the label of these products, so people go out and do things such as spraying Diazinon into the wind, the wind would blow it back into their eyes, they'd get eye irritation and damage as a result.

EPA chose to put—you'll probably find on that label in small print—restrictions that say that consumers, you and I, who would go into the hardware store and buy that, must wear goggles to use it, but did not prohibit the use of that product by households.

It seems to me that if it kills birds and wild life on golf courses, it would do the same on home lawns, so I am also at a loss to explain EPA's rationale for that.

Senator LIEBERMAN. So this warning on the front of the label, is actually a direct result of EPA action?

Mr. GUERRERO. That's correct.

Senator LIEBERMAN. So they are basically saying to us—this is not just to a manufacturer but EPA is saying, don't use it on golf courses, but you can use it on your home lawn?

Mr. GUERRERO. That's right. That is an actual restriction that EPA imposed on that product.

Senator LIEBERMAN. Maybe we will ask EPA about that. It does say at one point further on—if your eyes are real good, you can read the small print but it does say "Birds feeding on treated areas may be killed."

Mr. GUERRERO. EPA may have felt that it had better or more current information regarding sod farms and golf courses than it did for household applications.

Senator LIEBERMAN. This is a standard, very popular weed control product that does have 2,4-D in it. As far as I can see, it doesn't have any particular warning on it that relates to the National Cancer Institute studies that have been done. Is that correct?

Mr. GUERRERO. I haven't looked at that label, Senator, but again, EPA has not made a decision yet whether to conduct a special review. They are still waiting for certain health studies.

Senator LIEBERMAN. On 2,4-D.

Mr. GUERRERO. On 2,4-D.

Senator LIEBERMAN. Let me ask another question to clarify my understanding. It is possible today that these products would have the phrase, "EPA registered" or "Registered with EPA" on them and still, in fact, have been found to be possible or probable human carcinogens by EPA. In other words, the fact that they may say on the product that it's registered with EPA, which suggests that it has gone through some process of clearance, doesn't mean that it's not carcinogenic. In fact, some of them that would bear that title have been found by EPA to be carcinogenic?

Mr. GUERRERO. I think that's the same issue that we discussed in the spring with the overall reregistration of existing pesticide products and that the EPA registration number on the label alone may not mean all that much until EPA has fully completed their reassessment of these products for the potential chronic, long-term health effects. That process, as you know, is a very lengthy one, a very complicated one and it's taken many, many years.

Senator REID. Would the Senator yield? The one thing that Mr. Guerrero mentioned is that the EPA had asked for more data. That data, by their standards, will take 50 months to collect.

Senator LIEBERMAN. 50 months? That's almost 5 years.

Senator REID. Isn't that right?

Mr. GUERRERO. That's correct.

Senator LIEBERMAN. Just responding to what the Chairman has said that fact that it's going to be some time before EPA in the best of circumstances will go through the reregistration of most of these chemicals, don't we have an obligation to at least require the companies to say, we don't know whether this is going to be harmful to your health or not?

Mr. GUERRERO. When we did our earlier work, we observed the same thing. In fact, we recommended that may make a lot of sense under the circumstances. Although we have not addressed that

particular disclosure issue in our current work, our earlier recommendation still stands. It seems to make a lot of sense to us.

Senator LIEBERMAN. Let me just ask you a final question or two about your earlier recommendations. As you've indicated, very little, if anything, has changed since your last report in 1986. I guess my question to you quite simply is what are the most important things that we can do through Congress to make sure that the response to this report that you're issuing today is more complete than the last?

Mr. GUERRERO. I think it's important that the Congress hold the Environmental Protection Agency and the FTC accountable for a more active enforcement presence in this area. While EPA will probably testify later today that they have priorities and other competing demands on their resources, these types of actions account for something around the order of 2 percent of their total enforcement activities. Given the ease with which we found such prohibited claims, we believe that EPA needs to more closely examine whether in fact they are spending the right amount of resources there and at a minimum, they need a strategy or approach. They can't be waiting.

I think it is important for the Congress to hold the agency accountable for responding to that recommendation that they come up with an approach or strategy here. I also think it's important for the Congress to continue to monitor closely the implementation of the reregistration program as a whole, since that is the program that will ultimately provide the American public with the assurance that these products are safe to use.

Senator LIEBERMAN. If I may, Mr. Chairman, with your indulgence, you are in a unique position because you and your people have not only gotten into this field but been involved somewhat in the whole pesticide question, that is pesticides on the food supply side.

It seems to me that EPA is having a hard enough time reviewing and being able to say to us that the pesticides in the food supply are safe and I gather that they have made a judgment, which one can understand, I guess, that the question of chemicals on lawns is less compelling than on food.

As I read this over and as I draw some judgments about the impact of these chemicals as a result of inhaling them or getting them in your skin, it seems to me that they are—we will have witnesses in a moment testify that they can do some real serious damage to people.

I guess I'd ask you how you would compare the risk to humans from pesticides in the food chain and chemicals and lawn pesticides?

Mr. GUERRERO. I think, in short, it would be that those risks are unknown until this process is completed by EPA and EPA has the chronic toxicity data, has the epidemiological studies in hand, and whatever else it has requested. That until that process is run, it is difficult to characterize that risk fully and the American public has no assurance of these products' safety.

Senator LIEBERMAN. Thank you, Mr. Guerrero. Thank you, Mr. Chairman.

Senator REID. Senator Lieberman, thank you very much.

Mr. Guerrero, you are excused. Thank you for your testimony.

The second panel today will be Master Kevin Ryan, Arlington Heights, Illinois; Ms. Sharon Malhotra, Murrysville, Pennsylvania; and Mr. Thomas Prior, Maplewood, New Jersey. Would the three of you come forward and take your place at the witness table?

The testimony will be limited to 5 minutes. There will be a timekeeper. The light will be green, when you have a minute to go, a yellow light will come on, a red light means your time is up. We need to do this because we have approximately 20 witnesses today.

We would first hear from you, Kevin, if you would put that microphone there and proceed to giving us your testimony.

STATEMENT OF MASTER KEVIN RYAN, ARLINGTON HEIGHTS, IL

Master RYAN. I'd like you to know that I am an 11-year-old who gets sick when exposed to lawn and tree spray chemicals. Some of my symptoms from pesticides are as follows: numbing and tingling of arms and legs, muscle and joint achiness, chest pressure, respiratory problems, nausea, severe stomach pain, diarrhea, brain symptoms which are loss of memory, lack of concentration, irritability, depression and fatigue. I can't function mentally when I'm exposed to pesticides. I can't think or remember anything. I get angry for no reason. What are these chemicals doing to the other kids if this is what's happening to me?

There are many things I cannot do that a normal 11-year- old can. I can't even play in my own yard because my neighbors spray their lawns and trees. I feel like a prisoner in my home during the summer months when all of the other kids are outside playing. Even staying inside doesn't do enough good because the spray seeps through the house, especially on windy days.

I can't go into any public building or attend any public school in Illinois because all are sprayed with similar applications. I can't go to any parks in my community or surrounding communities because they are all sprayed and being on a baseball team is a dream I have given up because all of the ball fields are treated.

The select choir I'm a member of performs often in sprayed buildings and I can't participate. I have a special interest and talent in piano but I can't go to music contests or recitals for the same reason. There are days that I can't even play the piano at all because my fingers are too numb and stiff from chemical exposures.

My doctor told me I have to be careful about any further exposures to these pesticides to prevent more damage to my central nervous system, damage resulting from repeated exposures as an infant to our next door neighbor's lawn treatment. Fortunately, my parents have found a private school for intellectually gifted and artistically talented children that does not use pesticides on the grounds or inside the building.

However, in the spring and the fall, I still can't go to my school because of the surrounding neighbors that spray their lawns. As a matter of fact, I can't even live in my home or this State when the lawn care season starts. During the months of March to June and August to October, my mother, brother and I must vacate Illinois

and go west to the high elevations in Colorado where the air is clean.

I have to leave my home, my friends, my school, and my father—since his job is in Chicago—just because the people in my town don't want any stupid weeds in their stupid lawns, and the Government allows them to purchase their chemicals. It is very hard for me to leave my friends and school because I have to start once again at a different school—especially difficult at the end of the third quarter.

Please Senators, do something about these pesticides! They are robbing me of my childhood. I am so angry that my country has let me down; for allowing these chemicals to be put on the market without any testing and to be applied by any untrained person who knows nothing about the danger these chemicals cause.

I am learning in social studies about the inalienable rights that our founding fathers guaranteed in the Declaration of Independence—life, liberty, and the pursuit of happiness; but I don't have these rights. I don't even have the right to be healthy.

God has blessed me with many intellectual gifts and artistic talented I work 2 to 4 grade levels above my chronological age); but as long as these pesticides are used, my future in this country is hopeless. I fear the same fate for my little four year old brother who is already showing symptoms and for the other kids in this country. I don't want to see what has happened to me happen to them. We are the next generation. Our future is in your hands.

[A statement from Deborah L. Ryan (Kevin's mother) follows:]

Testimony for Senate Oversight Committee Hearing
for Pesticide Laws — March 28, 1990

I was a normal, functional, healthy person until my next door neighbor's lawn care company sprayed me in the late 1970's. I took no precautions to get in out of the spray or to remove my toodler from his sandbox which sat on the property line. As a matter of fact, he would run barefoot across the freshly sprayed lawn. Both my son and I have become ill as a result of these applications, and now react or have become cross-sensitized to a wide variety of chemicals. Our symptoms are consistent with mild and even moderate pesticide poisoning. Doctors are unfamiliar with low-dose poisoning; thus, reluctant to treat and diagnose. Because of misdiagnosis, it has taken us 3 years to find experts to put our health problems together with the repeated, direct exposures to the neighbor's lawn care.

My children and I are presently so ill that our doctors prescribe as medically necessary that we leave town April-June and August-October during lawn and tree spray season (now a nine month season in Illinois) in order to avoid further damage from repeated exposures to the pesticide applications. In the summer, we must also leave 4-5 days each time our village sprays malathion for mosquito abatement. Having to flee from our home to high altitudes in Colorado where no lawns are planted puts great stress on our family - physically, emotionally, and financially. We have no rights to protect our

health. We are forced to accept ill-health all because our neighbors and village insist on weed-free lawns and parks. I have to leave my husband, the children - their father, since he must stay in Chicago where his job is located. The children have to be uprooted from school each year at the most difficult times of the year - the fourth and first quarters of the year when transitions and learning gaps are critical.

Upon exposure to lawn care chemicals, my symptoms include but are not limited to: myalgia, pallor, malaise, muscle fasciculation, petechiae, clonacme, dermititis, ear and jaw pain, swollen glands, tachycardia, arrhythmia, chest tightness, numbness and tingling of extremities, nausea, vomiting, headache, severe gastritis, abdominal distention, diarrhea, respiratory difficulty, difficulty speaking, salivation, eye irritation, double vision and focusing difficulty, cerebral symptoms, lack of concentration, loss of memory, disorientation, irritability, sudden angry outburst, depression, lethargy, drowsiness, stupor. I now have episodes of temporary paralysis whereby I have no feeling in my legs for up to 4-6 hours when I'm exposed to spray. This condition has been a progressive neurological deterioration that started several spray seasons back with numbing and tingling of arms and legs. My son is in that stage right now - numbness of extremities when exposed to neurotoxins; we are concerned that his numbing will regress to paralysis as mine has. I also suffer from hyperplasia of the thyroid where my thyroid gland swells to 2-4 times normal size upon exposure to freshly applied pesticides.

Some pre-emergent herbicides used on the lawns and many inert pesticide ingredients are known as anti-thyroid pesticides that overstimulate the thyroid gland resulting in hyperplasia, then tumors. I'm already considered a high risk for cancer of the thyroid, thus it is imperative that I avoid further devastating exposures.

I have no choice but to run, my health has been compromised to the point of a life-threatening situation. My son, who is blessed with one of those rare genius I.Q.'s, has such great potential to make a significant contribution to society, but when he is exposed to neurotoxic pesticides, his brain can not function. He becomes totally debilitated; unable to think, concentrate, remember, incoherent, lethargic, angry, and depressed. How many children's brains and central nervous systems are affected by these poisons used on and around schools across this nation? How many learning disabilities, attention deficit disorders, behavioral problems, and suicides stem from exposures to neurotoxins (pesticides)?

What about all the other people out there that aren't relating ill health effects to low dose accumulative toxic poisoning from the lawn and tree spray that is saturating their neighborhoods? A recent CBE (Citizen for Better Environment) study showed that suburbia is dosed significantly (2-5x) higher than agricultural areas. I see the pregnant women and innocent children walking and playing in the parks after being freshly sprayed. When young mothers are concerned when spraying notification signs

are posted in the parks, my village officials tell them, "Oh, we have a few allergic people in town - nothing to worry about - the chemicals are perfectly safe." The chemicals are not safe according to the 1986 GAO Report to Congress - over 90% haven't been tested for cancer, birth defects, genetic mutations, much less neurological difficulties. And one can not be allergic to a toxic substance - just by the very nature of the definition of toxicity. Of particular concern are the innocent children walking to school while applicators are out spraying - often on windy days when drift is worsened and rainy days when the chemicals become even more volatile.

Does the basket of weed-free lawns outweigh the risks to human health? We are talking about the future of our children - it is foolhardy to expose our children with far less developed immune and central nervous systems to chemicals associated with dreaded diseases for the sake of a few weeds. Indeed it is our children that will pay for our negligence. Our quick-fix society is going to have to find a safer, healthier way to deal with weeds. I pray that once the government understands the magnitude of this dreadful problem in our country, the safety and health of innocent victims will be addressed

Sincerely,

Deborah L. Bryan
[illegible]
Arlington, Va. 22[illegible]

Senator REID. Kevin, if you will remain seated, we will have some questions for you when Ms. Malhotra and Mr. Prior finish. Ms. Malhotra.

STATEMENT OF SHARON MALHOTRA, MURRYSVILLE, PA

Ms. MALHOTRA. Good morning, Mr. Chairman and Mr. Lieberman. My name is Sharon Malhotra and I am a registered nurse. I live in Murrysville, Pennsylvania which is a suburb of Pittsburgh. I am a victim of pesticide poisoning as a result of exposure to lawn chemicals.

I previously enjoyed excellent health throughout my lifetime. I've never experienced any major illness, although I did experience some migraine headaches in my teen years. These headaches nearly disappeared from 1975 until 1985. 1985 was the first spring that I lived in a townhouse complex which utilized lawn care chemicals.

I was 5 months pregnant at the time with my first child when I suddenly went into unexplained, premature labor. This occurred in late March, a time of year when a great deal of spraying normally takes place. I soon developed severe headaches and continued to experience these until late autumn even after the birth of my child. The headaches once more appeared the next spring and again subsided in the autumn. The next spring, the headaches began on a day that we noticed the lawn had been chemically treated. We were mistakenly told by the applicator that only fertilizer had been applied. We learned later an insecticide had also been applied.

The headache increased in intensity. I was soon bedridden and could no longer care for my children or function normally. I soon began experiencing nausea, numbness and tingling in the nose, tongue, face and arms, visible muscle twitching, difficult articulation, extreme fatigue and inability to concentrate and ocular and neck pain. These symptoms persisted for about 2 weeks. I consulted an allergist and neurologist who ruled out any other causes for these symptoms and the neurologist suggested that I move.

After witnessing my symptoms, my husband—who an internal medicine and cancer specialist—suspected that I was suffering from some form of cholinesterase inhibition. This suspicion was reinforced when I again became violently ill after Diazinon was applied to our tree. We then learned that many of the insecticides used were organophosphates which are potent cholinesterase inhibitors and could cause the symptoms I experienced.

The following year, the lawn was not sprayed with an insecticide and I was not ill at all. I had a baseline cholinesterase drawn for future reference. We moved in June 1989 and even though I [illegible] the State-maintained registry for hypersensitive individuals, I was not informed by the applicator that a neighbor's lawn was being treated. I was outdoors and was needlessly exposed. I soon became violently ill with the same symptoms I experienced earlier and again was unable to function normally or care for my children.

I had another cholinesterase level drawn which showed a 25 percent decrease from my baseline. This gradually returned to normal as my symptoms disappeared. I have since experienced similar symptoms of varying intensity after exposure to lawn chemicals,

after shopping in hardware stores where lawn chemicals are sold, after shopping in pet stores, even while sitting in the veterinarian's office where flea sprays are used.

Every time I leave my home I am risking exposure to pesticides and subsequent illness. Today, while sitting here, I am risking exposure to pesticides. I have no way of knowing where or when this building was treated with a pesticide.

Like most Americans I once believed that EPA registration meant that a pesticide was safe and that these products would never be permitted for use on laws unless they had been thoroughly tested. I felt betrayed when I learned this was not the case.

Since the lawn care industry is rapidly growing, millions of Americans are frequently exposed to pesticides without their knowledge or consent. There are only a few of us here today. However, there are hundreds of thousands of victims whose lives and quality of life has been severely compromised.

I ask my fellow Americans, before you have your lawn treated with these chemicals, do you really need a picture perfect lawn at the expense of your neighbor's health? I also ask that members of this subcommittee take a leadership role and prohibit the use of these toxic chemicals for cosmetic purposes and prevent further contamination of our environment.

Give us a chance to live normal, productive lives once again. Thank you.

Senator REID. Your full statement will be made a part of the record.

Mr. Prior.

STATEMENT OF THOMAS PRIOR, MAPLEWOOD, NJ

Mr. PRIOR. I would like to thank the committee for a chance to speak out on this subject.

Seven years ago at age 30, my brother, Navy Lieutenant George Prior, was killed by the fungicide chlorothalonil, known under the trade name of daconil. It had been sprayed on the Army-Navy Golf Course here in Washington in sufficient concentration that my brother, while playing, absorbed a lethal dose through his skin and lungs.

His death was particularly nasty. He became grotesquely swollen; enormous blisters appeared on his body; one by one his organs failed; his skin sloughed off and he became blind. The pain was ceaseless and after 14 excruciating days, he died.

The Navy conducted a lengthy and unusually detailed investigation into the circumstances of George's death. Aerial photographs were taken, clothing and equipment were tested, course spraying and maintenance records were reviewed and a complete autopsy was performed. It was established beyond a doubt that chlorothalonil, daconil, had killed him.

Since then, naturally enough, I've followed closely the efforts of the environmental groups to establish minimal controls over the placement of poisons on the land. The subsequent callous and nonresponsive posture of the pesticide and lawn care industry has infuriated me but has not surprised me. It was to be expected that

they, like the tobacco industry, would disclaim as unproved all but the most benign effects of their products.

In response, I will take the circumstances of my brother's death to make some suggestions which seem to self-evident and long overdue.

First, the lawn care industry should be obliged to post warning notices where they are active. It is only common sense. Had this been done in my brother's case, there is a good chance he would be alive today.

In the weeks before his death, he had felt ill after playing golf. Had he known chlorothalonil's presence, I think it likely he would have made the connection and minimized his exposure.

Second, it is plain that the use of testing labs paid by the manufacturers to certify the safety of new products is a practice sure to be abused and which obviously should be rethought. The history of the certification of chlorothalonil is one of misrepresentation and cover-up. Had the testing been carried out honestly, it is unlikely that the product would have reached the marketplace in its present form.

Thirdly, the claim by the lawn care companies that they are professional and use trained personnel should be allowed no credence. There are no industrywide standards of training or experience. The application of chemicals is commonly carried out by unsupervised, entry-level employees heedless of the effects of weather and the importance of correct dosages.

Lastly, it remains to be said that the distribution of toxins in the environment should bear some relationship to the desirability of the result. The elimination of brown spots on a golf course or dandelions on a front lawn is not a sufficient reason to endanger, and in some cases, take human life like my brother's. That the degradation of our water supply and wild life is also directly connected to grossly inappropriate pesticide levels hardly needs repeating.

There is a clear need for the Government to take a much more active regulatory role. It is imbecilic to leave the responsibility for a healthy environment in the hands of people whose income is directly proportional to the amount of poisons they strew about the countryside.

Thank you for the chance to make this statement.

Senator REID. Thank you, Mr. Prior.

We have here a young man who is allegedly ill as a result of chemicals sprayed on lawns and trees, shrubs. We have a woman who is a professional nurse who is married to another professional who has been diagnosed as having been exposed to chemicals that make her sick. We have you, Mr. Prior, who lost a brother as a result of these chemicals. In your case, there is no question as to what happened.

Mr. PRIOR. None whatsoever.

Senator REID. There was an autopsy performed, so again, based on our prior experience in this subcommittee dealing with alar in apples, dealing with lead poisoning and other things we work on in this subcommittee, we are here to talk about problems that relate to people, real people, not to try to frighten anyone.

I want the EPA to know this, and I certainly know the people coming here to testify have little control over what the EPA does,

but I am really concerned that the Environmental Protection Agency has let something like this go on and on.

The point is, Senator Lieberman, because you will get some of the complaints that I do, that we are trying to sensationalize something that is no problem, well, the reason we have you here today and appreciate very much your coming, is because we are dealing with real problems that deal with human beings.

Kevin, I was impressed with your statement. Did you write it yourself?

Master RYAN. Yes, I did.

Senator REID. How old were you when you first started getting sick after being exposed to these lawn treatment chemicals?

Master RYAN. I was an infant.

Senator REID. Explain to me in your own words what happens if you get around a lot of these chemicals?

Master RYAN. Usually the first symptom is a headache and then my legs and arms start going numb, and it progressively gets worse from there.

Senator REID. Has anyone told you how long it took to determine what was wrong with you?

Master RYAN. At first we thought it was food allergies but it wasn't that. Then my mom became involved in a group about pesticide awareness and that's when she found out it was pesticides that were making me sick.

Senator REID. Have you gone to a doctor and that's what he's told you?

Master RYAN. Yes.

Senator REID. Do you have any friends that also have problems with this?

Master RYAN. Yes. I have one friend who is not as sick as I am but he does show symptoms.

Senator REID. The record should also reflect that in work we have done in other areas dealing with pesticides, people are affected differently. Some people can get real sick being exposed. Remember the work we did on composite materials? Some people who work with these composite materials get real sick; other people it doesn't bother, so that's another situation. Some people are more susceptible to these chemicals.

Ms. Malhotra, did the lawn care companies respond to your complaints that the lawn chemicals were causing your health problems?

Ms. MALHOTRA. Initially, we wanted the names of the chemicals that they were using in our area and what they sent us basically were these glossy brochures which did not include the names. After many telephone calls on our part, we were supplied with the names along with material safety data sheets.

What has happened in the meantime, the State of Pennsylvania had initiated the voluntary registry and it's voluntary. Applicators are requested to notify those who become ill. In order to be listed on this registry, a doctor must sign, there are some problems with the language, doctors are refusing to sign as a result.

In addition, the registry is updated infrequently and even though the applicators are requested to notify all of these people, I was

missed. I've spoken with several others who have, so as far as the companies responding that is the extent.

Senator REID. Kevin's testimony was quite clear that this has been an expense to his parents. Do you have any idea how much this problem has caused you, how much money it's cost you over say the past 5 years?

Ms. MALHOTRA. Over the past 5 years, I would have to say it has cost thousands of dollars to try and find an answer and to learn about the chemicals and the properties that they exhibited.

Senator REID. Have you also found, Ms. Malhotra, that it's difficult to find doctors that treat the problem?

Ms. MALHOTRA. Absolutely. The medical profession overall is ignorant that this problem exists. They are convinced that it is EPA-registered and is therefore safe. My husband and I received no training in this area. We had a difficult time believing it initially.

Senator REID. We had the same problem with these composite materials; that the doctors in the southern California area where they have the facility where they make these airplanes, and also in the State of Washington, doctors simply ignore the symptoms. People are sick and there are a couple of doctors who specialize in chemical poisoning, so I am sure it's been difficult for you and for Kevin to find a doctor that will acknowledge that people can get sick from overexposed to these chemical substances. Have you found that to be the case?

Ms. MALHOTRA. Yes.

Senator REID. Mr. Prior, how did the pesticide and lawn care industries react to the news of your brother's death?

Mr. PRIOR. They circled the wagons, no sympathy or admission of culpability was forthcoming at all.

Senator REID. I am sure each of you have come across advertisements like Senator Lieberman had. Here is one company called Chemlawn. Individually, have you looked at those brochures on lawn care—not that one in particular, but have you looked at any of them?

Mr. PRIOR. Yes, I have.

Senator REID. What is your reaction to these advertisements?

Mr. PRIOR. They are misleading and leave a lot of people at risk for the same type of happenstance that occurred to my brother.

Senator REID. Kevin, have you looked at any of these advertisements?

Master RYAN. No, but my mother has and she just hates them.

Senator REID. Ms. Malhotra.

Ms. MALHOTRA. They are absolutely misleading.

Senator REID. Mr. Prior, since the unfortunate passing of your brother, have you noticed any change in the attitudes of the lawn care industry over the last several years?

Mr. PRIOR. Not really, no, only because of pressure being put on them increasing over the years, but nothing that has been voluntary.

Senator REID. A young attorney died in Las Vegas during the past year, a very bad death. He suffered—he certainly didn't die as quickly as your brother but he suffered a lot. His parents believe that when he was in New Zealand he was sprayed accidentally at an agricultural facility, and they believe that's what caused his

death. There has been no confirmation of that, but certainly with the information we have here, I would think there is a lot of people who are sick and maybe even die that don't know why they die.

Mr. PRIOR. I would agree. There's a lot of anecdotal evidence but there is no national clearinghouse for these types of deaths or illnesses gathered so that we can point to them with absolute certainty that they occurred.

Senator REID. It's just like Ms. Malhotra noted, Pennsylvania has a registry of people who are allergic, hypersensitive to these chemicals and I think it's a great idea, except you can't get anybody on the registry basically because doctors won't certify that's what is wrong with them, doctors are afraid to do that. So the registry, even though it exists, it's about in name only. Isn't that right?

Ms. MALHOTRA. Pardon me?

Senator REID. It exists only in name?

Ms. MALHOTRA. Yes. This is the best kept secret in the State basically. When people do take it to their doctor after they find out about it—I had a difficult time having my allergist sign the form.

Senator REID. And you're married to a physician?

Ms. MALHOTRA. Yes.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman. Again, I echo your thanks to these three witnesses for being here today because you make this painfully and tragically real, and more than just us and witnesses out there talking about our fears because you've clearly experienced it and you are—to put it mildly—very, very credible witnesses.

As a matter of fact, Kevin, I do want to say to you that I am going to notify the two Senators from Illinois to enjoy the next couple of terms they have because when you're 30, I think you're going to be a great candidate for the United States Senate or anything else you want to do.

Let me just ask this question of you, Mr. Prior. If I understand the nightmare circumstances of your brother's death, while he began to experience these symptoms, you didn't really know what was happening, did you, of a cause?

Mr. PRIOR. We had a vague suspicion. While he was dying, during the 2 week period, we were casting about for an explanation and it occurred to us that it might be the culprit, but we had no proof until the Navy—being very curious as to why one of their young officers was dying in this fashion—took extraordinary steps to establish the cause of his death.

The thing is, other people around the country are dying in this way and they don't have the resources or the armed forces behind them to establish the reason for their death.

Senator LIEBERMAN. That's why I asked the question; that's what troubled me. I take it it's fair to say—maybe we've implied it all along—that what we are dealing with here are people who have some special sensitivity to these chemicals. We are concerned and talked earlier about the whole question of whether some of these chemicals are carcinogenic, but in the three cases we are talking about here, we're talking about acute—what I would call in layman's terms—almost an allergy, a special sensitivity. Correct me if I am wrong, is that a fair reaction?

Ms. MALHOTRA. I don't think it's an allergy. We are talking about toxic chemicals and it is simply a matter that a smaller dose affects me and these other people; a larger dose may affect you and you would possibly exhibit the same symptoms. So it's not an allergy.

Senator LIEBERMAN. I think that's a very important point. I am going to ask some of the doctors who are appearing later about it. I think that is a good point. You are saying it is something a little bit different than an allergy?

Ms. MALHOTRA. Yes.

Senator LIEBERMAN. For some reason or another, your system has a lower defense mechanism to these chemicals?

Ms. MALHOTRA. Yes. As a matter of fact, I have a product label here from an organophosphate that states "Repeated exposure to cholinesterase inhibitors may, without warning, cause prolonged susceptibility to very small doses of any cholinesterase inhibitor." In other words, I was exposed to a cholinesterase inhibitor and now very small doses affect me.

Senator LIEBERMAN. That's important. Do you have any idea of what percentage of our population may have this lower defense mechanism?

Ms. MALHOTRA. The National Academy of Science estimates that 15 percent of our Nation has some type of sensitivity to chemicals and that would include the pesticides.

Senator LIEBERMAN. Fifteen percent?

Ms. MALHOTRA. Yes.

Senator LIEBERMAN. So we're talking about an enormous number there, over 30 million.

Is there any way for people to know if pesticides which they may be sensitive to are being used around them at this point?

Ms. MALHOTRA. It is extremely difficult if you live in an area where the lawn care company does not notify you. Initially when I am called, they tell me, your area is scheduled for a lawn application. I have to say, excuse me, I need to know the name of the chemical. Then I am placed on hold for 5 minutes and then they will get back with that information, but that is probably the only way you would have to question the applicator.

Senator LIEBERMAN. What have you found about how the lawn care companies have reacted? Have you tried to get notices of when they are spraying in your area, around your school or something?

Master RYAN. Around my school area, they refuse to notify us but——

Senator LIEBERMAN. In other words, you asked them when they were going to spray and they refused to notify you?

Master RYAN. Yes, they don't notify us around my school. Around my home, sometimes they notify us. It depends on how far they are spraying away from my house.

Senator LIEBERMAN. How about you, Ms. Malhotra?

Ms. MALHOTRA. They do notify me when my neighbor has their lawn treated, however, I must do one of two things, either I stay in the house, close the windows, turn down the air conditioning, or I leave. Depending on where I go, the lawn may be treated at the mall, I have no way of knowing that when I come out and I'm exposed.

Senator LIEBERMAN. Are there groups that have sprung up around the country, support groups for people who have had these experiences that you've had or may have this special sensitivity?

Mr. PRIOR. Not to my knowledge.

Ms. MALHOTRA. There are grassroots organizations that have sprung up and are working together to put an end to this problem.

Senator LIEBERMAN. Let me ask you each a final question. You've gone through these horrible experiences; what would you most like us to do in the Congress to make this better than it is? Mr. Prior?

Mr. PRIOR. I think the agenda is straightforward and not a mystery to anybody. The testing procedure has to be brought up to honest levels of integrity and on a day-to-day basis, posting certainly ought to be required for lawn spray companies in areas where they are active with just a sign on the lawn.

Senator LIEBERMAN. Before and after?

Mr. PRIOR. Before and after, yes. Just a general realization that this is poisonous, toxic substances we are dealing with and they ought to be handled with care and not used where they are not absolutely needed.

Senator LIEBERMAN. In the case of your brother, do you know how long before he played golf on that day that they sprayed?

Mr. PRIOR. I think it was during the previous week that the spray was applied.

Senator LIEBERMAN. It wasn't earlier in the day?

Mr. PRIOR. It wasn't earlier in the day, no.

Senator LIEBERMAN. And it certainly wasn't visible to any extent?

Mr. PRIOR. No.

Senator LIEBERMAN. It wasn't as if there was a cloud of spray on the course that day?

Mr. PRIOR. That's true.

Senator LIEBERMAN. It was totally invisible?

Mr. PRIOR. Invisible.

Senator LIEBERMAN. Kevin, what would you like us to do?

Master RYAN. It would really help if you could make people aware around the country of this problem so they might change their minds about spraying their lawns and might become more interested in this problem.

Senator LIEBERMAN. Ms. Malhotra.

Ms. MALHOTRA. I think the use of some of these chemicals should be prohibited for cosmetic purposes. It's not necessary. Some other things——

Senator LIEBERMAN. In other words, we should reach a judgment about some of these that the risk is so high that the purpose really doesn't justify the use?

Ms. MALHOTRA. Yes. There are alternatives to all of these that won't hurt us. We also need studies, we need thorough studies to determine what the hazards of these chemicals are. Accurate information to the public, the public is under the misconception that these are safe because they are EPA-registered. Mandatory posting nationwide, we have a right to know, as Americans, what we are exposed to. Education of medical professionals, they are misdiag-

nosing victims and it's imperative that they are aware of what is occurring.

Senator LIEBERMAN. Thank you all. Your testimony has been very compelling. Just to point out what may be obvious, in the three cases we are talking about here, we are not dealing with the concern that we talked about earlier about the person who buys the product and there is inadequate warnings and puts it on their law. We are really talking about your brother and the two of you as truly innocent bystanders who are being insidiously affected beyond your control, except when you know it's there--in Kevin's case when he moves to Colorado for those spraying months.

This, to me, is a classic area where the law has to offer you some protection or you won't be protected. There is only so much you can do to protect yourself. Your brother really reasonably had nothing he could do to protect himself unless there was a sign up there that said they had sprayed because it was simply not visible.

Mr. PRIOR. You should not die as a result of playing golf.

Senator LIEBERMAN. Absolutely. Thank you.

Senator REID. We have been joined by the Ranking Member of the subcommittee, Senator Warner of Virginia. Senator Warner?

Senator WARNER. Thank you, Mr. Chairman.

I again commend the Chair and my distinguished colleague from Connecticut. The three of us have a heavy obligation in exploring and working in this ever evolving field, whether it be the food chain or other products that we apply to our land. I commend you, Mr. Chairman and I think we are making progress.

Kevin, I've heard a thousand witnesses in 12 years in the Senate and you hit it right on the nailhead. Our job is to make people aware, to help people educate themselves. We thank you, your parents and others for coming forward today and telling us in your own words, without a big prepared text, your story. We are going to take that into careful consideration and we'll hear others today.

The function of the Congress, primarily, is to pass laws, but it's also to help people become aware of a problem. We've got to do that in a balanced way because as we came to work today, not only here in Washington but all over America or much of it, we see the dawning of spring and spring has a special meaning for almost everyone. We want to enjoy that spring in the way that we individually desire and many look forward to working around their homes, or working on their farms, and using the large number of products that are available to enhance the beauty.

I've often thought that the outside of a home and the manner in which it's kept is a reflection of the inside of the home and the people and the character that live there. This hearing this morning will help others to learn about some of the dangers. We want to do it in a way so as not to scare people or frighten people. Wouldn't you agree with me on that, Kevin?

Master RYAN. Yes, but it's more important to get the information out and better to warn people of the possible health effects than it is to worry about whether or not the information is going to be frightening to people. Nothing is more frightening than to be sick with pesticide poisoning.

Senator WARNER. We want to do it in a balanced way. I think your testimony and that of other witnesses will do this. If we can

achieve those results, let's home we can spare others of some of the suffering and discomfort and the loss that each of you have experienced.

Thank you very much for coming this morning.

Senator REID. Thank you, Mr. Warner. I appreciate your being here today. You've been a great contributor to this subcommittee. We try to do things, as you know, on a bipartisan basis and your appearance here today certainly makes that more possible.

The panel is excused. Thank you very much.

The third panel will consist of the Hon. Robert Abrams, Attorney General of the State of New York. Mr. Abrams, if you could limit your prepared remarks to 5 minutes, we will make your complete statement part of the record because we do have some questions that we want to give to your great legal abilities.

STATEMENT OF HON. ROBERT ABRAMS, ATTORNEY GENERAL, STATE OF NEW YORK, ACCOMPANIED BY HON. MARTHA McCABE, ASSISTANT ATTORNEY GENERAL, STATE OF NEW YORK

Mr. ABRAMS. Thank you very much, Senator Reid, Senator Lieberman and Senator Warner.

Seated to my right is Assistant Attorney General Martha McCabe who is in our Environmental Protection Bureau and has been working in this area of pesticides.

I want to congratulate you for your leadership in focusing on this critical issue. The fact that the lawn care industry markets toxic chemical products for uses that are fundamentally aesthetic should make government particularly vigilant in regulating the industry. Unfortunately, this has not been the case.

Today, there are basically only two ways that customers of commercial lawn care companies and do-it-yourselfers find out about the safety of lawn care pesticides. One is the pesticide label and the other is advertising by the lawn care companies and manufacturers of retail pesticides.

Relying on the current label is completely inadequate, particularly for typical lawn care consumers such as suburban homeowners or city dwellers with children, or pets and neighbors who may all be jeopardized by pesticide exposure. The label gives minimal information about the environmental and health risks of pesticides. The major piece of information that it does give, the EPA registration number, is widely misunderstood.

An EPA registration number on the package is not a guarantee of safety since the registration process is a balancing act of risks and benefits and not a safety determination.

The label also does not disclose the so-called inert ingredients of the pesticide product which may be anything but inert when it comes to effects on human health. Benzene, toluene, xylene, formaldehyde are among those inerts which are just as toxic as the active ingredients or even more so.

As a consumer protection device the pesticide label mocks the notion that "forewarned is forearmed." This morning, I want to urge Congress and EPA to make several changes in pesticide labeling.

First, EPA should require simple label language informing users that any pesticide use may pose potential health risks. This warning, however, should in no way absolve manufacturers from liability for any damage that their products may cause.

Second, to avoid confusing the public, the label should state clearly that registration is not a government guarantee that lawn pesticide use is free from risk. The General Accounting Office suggested this in 1986 but so far, EPA has failed to adopt the recommendation.

Th[illegible]d, EPA should require that all pesticide labels be legible and written in plain language. Finally, EPA should require that lawn care companies provide consumers with copies of the warning labels to each pesticide which is used on their lawn.

Even if they receive meaningful label information on which to base their decision about using lawn pesticides, consumers may be confused by a deluge of advertising by pesticide manufacturers, as well as their trade associations and lawn care companies who all, of course, want to increase sales. These biased sources don't tell the full story.

We discovered that literature distributed in New York State by the Chemlawn Services Corporation, the largest commercial lawn care applicator in the United States, assured prospective consumers that lawn pesticides are "safe" and are "practically non-toxic." We believe these claims are false and misleading. In 1988, we brought the first false advertising case in the Nation against a lawn care company after Chemlawn refused to halt these claims.

Such advertising claims are pervasive nationwide and yet EPA has brought only a single enforcement action. New York State has attempted to protect our citizens when the federal government failed to do so, but efforts at the state level alone are simply not enough. For example, we in New York now require lawn care companies to give customers the health warnings from the pesticide label but only EPA can correct the deficiencies on the label itself.

Accuracy and full disclosure in labeling is only a part of the problem. The safety of pesticides remains the overriding concern. EPA and other authoritative scientific research bodies have concluded that several constituent ingredients of current lawn care pesticides are known or probable carcinogens. Moreover, pesticides may pose other health risks including central nervous system damage, birth defects, and reproductive problems such as sterility.

Clearly FIFRA and its recent amendments have not gone far enough. It is time for Congress and the EPA to consider significant further steps to reduce the risk from lawn care pesticides.

First, EPA should address the public's confusion about pesticide registration by banning pesticides containing known or probable carcinogens used for aesthetic purposes like lawn care. The risks posed by these carcinogens are not outweighed by the benefits of an aesthetically pleasing green lawn.

Second, Congress should clarify that Federal rules governing pesticide advertising apply to lawn care applicators and not only to the pesticide manufacturers. EPA and the Federal Trade Commission should also be more aggressive in policing false or misleading pesticide advertising.

Third, Congress should create a private right of action under FIFRA allowing any person to sue and recover legal costs to halt false and deceptive product safety claims by any person, including but not limited to manufacturers.

Pesticides once applied only in agriculture are now used widely around homes, on school grounds and in public parks. The nation may pay a high price for letting these chemicals permeate our communities when we have such a limited understanding of their true adverse effects.

In view of the many questions about pesticides, I believe very strongly that now is the time to err on the side of safety. People, not pesticides, should get the benefit of the doubt.

Senator REID. Tell the result of the lawsuit or is it still going on?

Mr. ABRAMS. It is still pending. It has been fought very aggressively by Chemlawn. Interestingly enough, after we served notice to them that we were going to file the suit, they sought to try to embarrass us perhaps or preempt us by suing us saying we were interfering and about to interfere with their commercial right of free expression. They've been very tenacious in the midst of the litigation, but they have made several admissions during the course of the litigation.

They have now said that indeed they have used four chemicals that have been classified as human carcinogens. They have now admitted that dioxin has been used in lawn care pesticides and they now indicate that lawn care pesticides are not selectively toxic.

They have not agreed to settle the case. We may well go to trial and we are convinced, Senator, that we're protecting an important interest here and we are going to aggressively move forward until we have a conclusion.

Senator REID. The people of the State of New York should know that your hands are tied because of what we're not doing here. You would certainly be better equipped if the Federal law gave you more assistance and if the EPA had been a little more aggressive in some of their work as to these false and misleading claims as the GAO has indicated.

I don't know if you were in the audience—I believe I saw you there—when we discussed the GAO report. They didn't have to hire a private detective to go get these false and misleading claims. They picked up a telephone and said, tell me about these lawn products, will they hurt me, and we get this string of assertions that you could lay in it for days, you can do anything but drink it, all those kinds of claims that simply are false and misleading.

I personally appreciate your setting the standard for the country because we haven't done it here. I wish you well in your lawsuit even though you are working with your hands tied behind your back and the people of New York should know that if you win this, you and your associates have really done a good job.

Mr. ABRAMS. Senator, thank you very much for your kind words. I think your work is critically important because this protection should be afforded to all the people of the United States.

We had another earlier case up in Buffalo where there was an infant in an ad rolling around and frolicking on a front lawn. We said, you know, you're inferring that it is safe for infant children to play on a lawn after it's received a pesticide application, and we

think that's wrong. They denied that was the inference but we did force that company to alter the ad and take that infant out of the ad.

These are the kinds of commonplace problems you alluded to and allow me too, Senator, to use this opportunity to thank the GAO. They are a fantastic, independent voice on behalf of the public interest, a tremendous resource to the United States Congress and to all Americans. I hope that their newest report will be a prod together with your leadership to get some action this time by the EPA and perhaps with some analysis and thought, a change in the law so that the Congress will now compel new disclosures and protections for the American public.

Senator REID. GAO would even do a better job if we funded them properly.

Would you characterize the assistance New York has received from the EPA during this lawsuit?

Mr. ABRAMS. We did, Martha, did we not, get an affidavit from EPA.

Senator REID. Please tell us about that. I'd like to know if they have cooperated.

Ms. MCCABE. Mr. Chairman, the EPA has been very helpful to the State of New York in the Chemlawn lawsuit as well as in a challenge brought by a number of industry groups to New York State's pesticide advance notification regulations brought on the grounds that they were preempted by FIFRA. In both instances, EPA was extremely helpful to us in furnishing statements and in the case of the Chemlawn case, an affidavit, stating unambiguously that the registration program at EPA is not a guarantee of safety and should not be interpreted as such.

Senator REID. Have you received any inquiries from other States as to the progress of this litigation?

Mr. ABRAMS. Yes. Other States, I think, have become increasingly interested. Just this past weekend, I attended a conference of people from all over the country concerned about pesticide issues and many people came up to me aware of the need for greater activity in their State and of some of the things that have been done in different parts of the country. I think the work in New York and elsewhere in the country, and obviously the work of this committee in conducting this kind of hearing is intensifying and mobilizing people on the issue of what this country should be doing to better protect its citizens from pesticide abuse or misuse.

Senator REID. Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

We welcome you counselors, your testimony is very helpful. We are drawn to this question of the role of the Federal Government versus the role of the State government. FIFRA, by and large, carves out a major share for the Federal, primarily I suppose to avoid any restraint of trade and interstate commerce, and also I can see where if one State chose to put a very large label on a can and an adjoining State chose either not to or put a much smaller one, it would be confusing to people, so I think there is a balance here between the State and Federal roles.

Are you suggesting any change in that balance and a change in the respective responsibilities of the Federal Government and the State?

Mr. ABRAMS. Senator, I think what should be done is the Congress should enact basic standards to outlaw misleading safety claims and not to preempt the States, to allow the States—if they feel in their own police power ability and in their own public policy interests that it is important for the States to be even more stringent—to be able to freely do so. I think that has worked in so many other areas of the law and Federal and State enforcement that that is what should be done here as well.

Senator WARNER. That is a very important observation you have and recommendation. Under the police powers of the several States, would that enable them to say the State of New York may select a particular product which, in the judgment of their safety commission, or whatever the name is for the State authority, and to put a label other than that required by the Federal Government, on there?

Mr. ABRAMS. Not in terms of the labeling per se.

Senator WARNER. What would be the role of the individual State, which would enable it to go beyond what the Federal Government is doing either under FTC or EPA?

Mr. ABRAMS. For example, it could be with respect to the notice of the label.

Senator WARNER. What do you mean the notice of the label?

Mr. ABRAMS. New York, for example, has passed a law that would require notice to those who are customers of lawn care companies to be able to have the notice of that label provided to any customer, so it's got to be sent because when you buy a product from the shelf, you'll have a label on it, but if you are a customer of a lawn care service, some applicator is coming with a hose and spraying the stuff so how are you going to really get that notice.

Senator WARNER. I am concerned, yes, for the customer, but really more concerned about the innocent bystander. How does he or she get the notice?

Mr. ABRAMS. We have a bill pending in the legislature that we are pressing very arduously for to give notice to the people who are neighbors or who live next door. The State Department of Environmental Conservation put out regulations that would require notice to members of the public where pesticides are applied, so if a museum, a public facility, a restaurant was about to apply pesticides or just did, a public notice, a sign would have to be required.

Again, unfortunately, we have seen stonewalling and resistance by the industry. They have challenged us in court, spent considerable money. We have sustained our position through the Federal courts but unfortunately, we've lost a couple of battles at the State court level and we are now going to the highest court in New York State.

Senator WARNER. We want to be careful. I was once a U.S. Attorney myself. The term stonewalling depicts that maybe these companies are less than cautious about the welfare of the people of the United States. I think they have a right to exercise their viewpoints under the laws, Federal and State, and they are doing that in the courtroom.

Did your colleague have a different view or an additive perspective on this?

Ms. McCABE. Thank you, Senator. I have copies of New York's notification statute which I'd be happy to leave with the committee staff here.

Senator REID. We will make that a part of the record.

[The material referred to follows:]

§ 33-0909. Denial or revocation of certification or registration

Library References

Licenses ⇐38.
C.J.S. Licenses §§ 43, 44.

Notes of Decisions

1. Fairness of revocation

Penalty of revocation of registration and certification for commercial application of pesticides was not disproportionate in light of serious risk to public health and safety caused by misapplication of pesticide chlordane causing contamination of 16 homes. Eastern Exterminating Co., Inc. v. Williams, 1985, 109 A.D.2d 864, 487 N.Y.S.2d 59, appeal denied 64 N.Y.2d 611, 490 N.Y.S.2d 1024, 479 N.E.2d 827.

§ 33-0911. Certification and registration fees

Library References

Licenses ⇐22, 28.
C.J.S. Licenses §§ 34, 38, 39, 46, 47.

TITLE 10—SPECIAL REQUIREMENTS FOR COMMERCIAL LAWN APPLICATIONS

Section
33-1001. Requirements and restrictions.
33-1003. Visual notification.
33-1005. Rules and regulations.

§ 33-1001. Requirements and restrictions

1. Prior to any commercial lawn application the applicator shall enter into a written contract with the owner of the property or his agent specifying the approximate date or dates of application, number of applications, and total cost for the service to be provided and shall supply the property owner or his agent with a written copy in at least 12 point type of:

a. a list of substances to be applied including brand names and generic names of active ingredients;

b. any warnings that appear on the label of pesticides to be applied that are pertinent to the protection of humans, animals or the environment; and

c. the company name, address, telephone number, business registration number and applicator certification identification card number.

2. In the event that application on the date or dates specified becomes infeasible, the person who is to provide such application shall give the owner or his agent oral or written notice of the proposed alternate date or dates, and shall receive acceptance of such alternate date or dates from the owner or his agent prior to initiating commercial lawn application.

3. Persons providing commercial lawn applications shall maintain copies of all contracts required pursuant to subdivision one of this section.

(Added L.1987, c. 559, § 3.)

Effective Date; Rules and Regulations. Section 4 of L.1987, c. 559, provided: "This act [amending section 33-0101, enacting this section and sections 33-1003 and 33-1005 and enacting provision set out as a note under this section] shall take effect on the two hundred seventieth day after it shall have become a law [eff. Apr. 25, 1988], except that any rules and regulations

necessary for the timely implementation of this act on its effective date shall be promulgated on or before such date."

Legislative findings. Section 1 of L.1987, c. 559, provided: "The legislature finds that over the last five years there has been extensive growth in the commercial lawn care industry, and that this growth has attracted a small number of unscrupulous and inadequately trained individuals. Further, the legislature finds that some of the chemicals employed in providing such services are hazardous if improperly applied and that without proper notification and warning, exposure to such chemicals may constitute an unnecessary risk to the public health. Therefore, it is the purpose of this legislation to protect the public by requiring that commercial lawn care operators enter into written contracts with their customers and disclose the name of pesticides to be applied and warn of any hazards associated with its use. In addition, certain outdoor property which is accessible to the public shall be posted with notification that a pesticide has been applied."

§ 33–1003. Visual notification

1. All persons providing commercial lawn application shall affix markers to be placed within or along the perimeter of the area where pesticides will be applied. Markers are to be placed so as to be clearly visible to persons immediately outside the perimeter of such property. Such markers shall be posted at least twelve inches above the ground and shall be at least four inches by five inches in size.

2. The markers required pursuant to this section shall be in place on the day during which the pesticide is being applied and shall instruct persons not to enter the property and not to remove the signs for a period of at least twenty-four hours. Such instruction shall be printed boldly in letters at least three-eighths of an inch in height.

(Added L.1987, c. 559, § 3.)

Effective Date; Rules and Regulations. Section effective Apr. 25, 1988, except that any rules and regulations necessary for implementation shall be promulgated on or before such date, pursuant to section 4 of L.1987, c. 559, set out as a note under section 33–1001.

§ 33–1005. Rules and regulations

The commissioner shall have the power to promulgate the rules and regulations necessary and appropriate to carry out the purposes of this title.

(Added L.1987, c. 559, § 3; amended L.1987, c. 560, § 1.)

1987 Amendment. L.1987, c. 560, § 1, eff. Apr. 25, 1988, in relation to the power of the commissioner to regulate the commercial application of lawn pesticides, deleted reference to special conditions under which commercial lawn application should not take place and any exceptions to the requirements established in this title.

Effective Date; Rules and Regulations. Section effective Apr. 25, 1988, except that any rules and regulations necessary for implementation shall be promulgated on or before such date, pursuant to section 4 of L.1987, c. 559, set out as a note under section 33–1001.

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Ms. McCABE. I would just make note of the distinction that I believe you were alluding to, the distinction between labeling and that's quite true. Under FIFRA, the power to specify the contents of the label is preempted to the EPA, however, in the area of notification, it is quite clear that is separate and apart. The States, up to now, in about 14 States have exercised this power to provide what the U.S. Court of Appeals for the Second Circuit has said about our notification regulations: "The target audience of the New York notification program is those innocent members of the general public who may unwittingly happen upon an area where strong poisons are present as well as those who contract to have pesticides applied."

Senator WARNER. I would think from what you've said, that you want to leave the area of notification within the States and not get the Federal involved in that?

Mr. ABRAMS. My own view is I think it is an important issue. That's why we went to the New York State legislature to pass a regulation, but I think it is important enough for the American people.

Senator WARNER. Let me put a second question to you. If the Federal Government has a program by which we give very substantial—I say we, the Executive Branch of our Government—gives substantial funding to the several States for the purpose of performing inspections and going out and gathering such information as is pertinent to these issues, is that program adequately funded and is it working?

Ms. McCABE. Senator, in all candor, Attorney General Abrams represents the State Department of Environmental Conservation which, among other responsibilities, carries out programs in the area of pesticide management. We would report from the front lines of State regulation that the funds that the State is receiving are not adequate to the tasks and missions which EPA has directed it to accomplish.

Senator WARNER. Do you make up the deficit with State funds to get the tasks performed or does the task go unperformed?

Ms. McCABE. With respect to State funds, those are generated by fees paid by the private industry through certification fees, business registration fees, and product registration fees. The answer is a little bit of both, in all candor. New York could do a better, more aggressive job with more resources and more staff.

Senator WARNER. Thank you very much.

Thank you, Mr. Chairman.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Again, it's a pleasure for me to welcome my former colleague and dear friend, Attorney General Abrams, and to congratulate him on his leadership here.

I just want to bring out something you said earlier because I think it again makes a very powerful case, just to make sure I heard it correctly. In your suit against Chemlawn, you were acting on the basis of a claim that they made that the chemicals they used were safe and if I remember the term, "practically non-toxic." Are generally those words correct?

Mr. ABRAMS. That's correct.

Senator LIEBERMAN. If I heard you correctly just a couple of moments ago, you said, when the Chairman asked you about the status of the case, you said during the proceedings that are ongoing, Chemlawn has admitted that four of the chemicals they use are probable human carcinogens?

Mr. ABRAMS. That is correct.

Senator LIEBERMAN. To say the least, there is a large gap between practically non-toxic and safe and human carcinogens.

Mr. ABRAMS. We viewed that as a very substantial concession on the part of Chemlawn and indicative of the kinds of further concessions that we think have to be made given the kinds of allegations we made in our complaint and petition.

Senator LIEBERMAN. Do you think, from what you know, that the Chemlawn story is a unique one? Are you involved in any other consideration or investigation of claims or representations made by lawn care companies in New York State?

Mr. ABRAMS. It is not unique, in our view. We have had other cases, we have other investigations underway. You have heard this morning from the GAO how right here within the Metropolitan Washington, D.C. area very quickly there was revelation of deception and misleading advertising that was done in brochures and other advertisements. We think this is rampant in the industry.

This is a growing, emerging industry; more and more in the last few years, it has become this multibillion dollar industry with over 7 million homes getting lawn care service. We are at a very critical stage and that is why I think your own work and leadership here is vitally important to make this assessment while this industry is going at its upward spiral.

Senator LIEBERMAN. I appreciate that answer. Let me just pick up on the beginning of the conversation you just had with Senator Warner as we think about what we might do. I think it is clear that we have to do something to build up EPA's resources here to make judgments about these chemicals or pending that, we make sure that—as you've suggested quite clearly—there ought to be a warning on the label saying this product may be hazaardous to your health, just as we do on cigarettes, now alcohol and other products as well.

I want to talk about the whole question of notice. Again, we saw these three people here, two themselves and one lost his brother as a result of involuntary exposure to spraying. Should there be a Federal law on this as well? Should there be a Federal law that sets a minimum national standard without preempting the States from doing more if they want?

Mr. ABRAMS. That is my view, Senator. That notice is critically important. I think that was corroborated by the very illuminating and moving panel of individuals who were affected directly right before my coming to speak to you. So I think that this is a protection that should not just be available to the citizens in New York because at the time the Federal Government hadn't acted, the State legislature acted. I think this is the kind of protection that you should consider providing people all across this country, again, not preempting States from doing more if it's their will to do that.

Senator LIEBERMAN. I think that last point is a good point and obviously because use of lawn chemicals is determined somewhat

by climate and in some States, lawn chemicals are effectively used 12 months a year because they are warm climates. We certainly want to leave those States the opportunity to legislate according to the specific needs they face there. I agree with what you said and I appreciate it.

I don't want to take a lot of time on this but can you give us a brief overview of what the bill pending in the New York Legislature provides by way of notice of spraying?

Mr. ABRAMS. We were able to get notice to the specific customer, but we think that there should be broader notice because what about the neighbor next door? In fact, we heard from your witness from Pennsylvania about this kind of an issue. Somebody could be chemically sensitive. Your own question highlighted that now is in the range of 30 to 40 million people. It could be a windy day.

It is important for that person to know that the pesticide applicator is coming tomorrow in the morning because if I'm particularly vulnerable or even if I don't know that, I want to provide protection for myself and members of my family, I want to be away from the house during that particular period of time because the wind might be causing it to come over onto my property or the runoff by virtue of the slope or the terrain might cause it to come onto my property or my pet, a series of pets in the household, or my infant, or my kids might be playing right adjacent, playing ball, et cetera, right in the driveway in between.

So I think this kind of notice becomes critically important and in the regulations that were promulgated by the Department of Environmental Conservation, it was an opportunity for notice at a public golf course, at public parks and facilities, at restaurants in any kind of public place where there might have been the application of pesticides. Again, we think that is critically important for the public's right to know.

Senator LIEBERMAN. I appreciate your answer. I think these are the kinds of detailed questions that we will want to get into as we try to draft legislation, assuming we do, and I look forward to working with you and your staff on putting that together. Thank you.

Mr. ABRAMS. Thank you, Senator.

Senator REID. Thank you very much for your timely testimony.

We have a little procedural problem here that we are trying to work out if everyone would just relax for another minute or so.

In an effort to save time, why don't we have the fourth panel come forward. That is Mr. Victor Kimm, Deputy Assistant Administrator, Office of Pesticides and Toxic Substances, Environmental Protection Agency and Dr. Sheila Zahm, Division of Cancer Etiology, National Cancer Institute. If you will just hold still for a little while, we will try to be with you in a minute or so.

Ladies and gentlemen, there are a number of unnamed Republicans who have objected to this hearing taking place. The Senate rules state that without unanimous consent, committee hearings cannot proceed for more than 2 hours after the Senate convenes. Their objection is part of the Senate rules, Senators have a right to do that.

Everyone should know that a Senator, chemical companies, no one is going to stop the gathering of the information that they are

attempting to stop. We are going to come back at 2 o'clock this afternoon. If there is an objection at that time, we will reconvene at 8 o'clock tomorrow morning and complete this hearing. We will stand in recess until 2 o'clock.

Senator Lieberman, do you have anything to say?

Senator LIEBERMAN. Just to say, Mr. Chairman, that I strongly support your reaction. I think this is not just troubling, it is outrageous, and I regret it. Not only in pursuit of truth and facts, we have witnesses who have come from all over the country to testify and I hope we can work this out by 2 o'clock. If we don't, I will certainly come back here and be with you as early as necessary tomorrow morning to make sure we finish gathering the evidence so that we can go forward and do something about it.

Senator REID. I would further indicate that this is not only time-consuming and expensive but it is an attempt to stop a truth-gathering proceeding. That is what we are trying to do here. Certainly Senator Warner has been more than cooperative today as always, but I can't say that for some of his colleagues.

We will stand in recess until 2 o'clock today.

[Whereupon, at 11:26 a.m., the committee recessed, to reconvene at 2:00 p.m., the same day.]

AFTERNOON SESSION—2:00 P.M.

Senator REID. The subcommittee will come to order. We again apologize to everyone.

The fourth panel is Mr. Victor Kimm, Deputy Assistant Administrator, Office of Pesticides and Toxic Substances, Environmental Protection Agency and Dr. Sheila Zahm, Division of Cancer Etiology, National Cancer Institute. Mr. Kimm, would you proceed, please?

STATEMENT OF VICTOR KIMM, DEPUTY ASSISTANT ADMINISTRATOR, OFFICE OF PESTICIDES AND TOXIC SUBSTANCES, ENVIRONMENTAL PROTECTION AGENCY

Mr. KIMM. Good afternoon. I am pleased to here. I will be happy to submit testimony for the record, which I think the staff has had for some number of hours at least.

Senator REID. We will make your complete statement a part of the record, Mr. Kimm.

Mr. KIMM. I will try in the next 5 minutes to outline the principal comments contained in the testimony. Briefly, I will try to identify the key issues related to lawn care use as we see them and what the agency is doing to deal with these problems.

To begin with, as noted by other speakers this morning, pesticide use in lawn care is widespread and growing. The estimates that we have are something like 70 million pounds of active ingredient per year are presently being used and the lawn care companies themselves are now a $1.5 billion dollar industry servicing some 7.5 million homes, and growing at the rate of 5 to 8 percent a year. So this is a significant exposure route.

Although dietary exposure continues to be a top priority to EPA's pesticide program, the Congress and most of what we hear from the public, we are also concerned about the types of things we

have talked about today related to lawn care—again, widespread exposure and the potential for risks.

The testimony itself is focused on four particular areas which I will try to cover briefly. One deals with testing and data. That is getting full and accurate current data on all of the active ingredients the agency has presently registered, in particular those that are used in lawn care treatments.

I'd like to also talk a little bit about the regulation of advertising of lawn care chemicals and treatment services. I'd like to talk also about our perception of the current situation related to posting and other forms of notification and how we deal with following up on complaints and incidents as we hear about them. Then finally I will talk about what EPA's trying to do in the name of pollution prevention which is to promote integrated pest management and other techniques aimed at reducing to the maximum degree possible excess dependence on chemical pesticides for lawn care.

To look at data requirements, there are really three areas that we are concerned about. One of them deals with the toxicology of the active ingredients themselves. Here the universe of 34 active ingredients constitute more than 90 percent of the materials used in lawn care treatments. Of those, 29 in addition to lawn care uses have significant food uses and so are subject to the full activities related to reregistration—that is the complete dataset for both acute and chronic effects are being developed and will be reviewed in the format that is prescribed in the statute, the 1988 amendments.

I'd like to point out that several references were made this morning to the fact that the EPA provides a registration number. That number constitutes a positive finding by the agency that if that pesticide is used in accordance with label requirements, based on the requirements at the time that number was issued, the use of that material would not constitute an unreasonable risk—that is, the benefits exceed the risks to the degree that we can determine them.

The problem as I think you well know is that for the old pesticides, those that were registered initially in the 1950s and 1960s, they were registered on the basis of the science that was available at that point in time. The lack of resources over many years prevented the agency from effectively reviewing these older pesticides and that led, after extensive debate, to the amendments to the FIFRA legislation in 1988 which will, in fact, make it possible for us to upgrade the databases supporting all of the active ingredients presently registered.

To do that, the Congress has shifted much of the reregistration burden to the registrants and set up a hefty fee system which when combined with appropriated funds will provide the agency with about a quarter of a billion dollars with which to go through the rigorous process of reviewing the science as it relates to the toxicology behind all of the pesticides currently registered. That's about 600 active ingredients.

As it relates to environmental fate and exposure, the lawn care chemicals are like other pesticides, that is, the principal concerns are with their stability and mobility, and we are provide and are requiring the generation of the data necessary to look at how these

things move through the environment and to look at the toxicology associated with fish, aquatic invertebrates and birds so that we will have the ability to look at their potential environmental impacts.

In the area of exposure, the problem is more complicated and it takes us to the limits of what we presently have much scientific information on. Here, the three questions we are trying to answer are: how much residue remains on the turf, how much of that is available; secondly, some notion of how much of that gets transferred to the people that come in contact with it; and finally, looking at behavioral patterns so we have some idea of how much exposure is likely to take place over time.

That third area is an area in which we have some research going on because there is limited data, and all of these are areas that are being actively explored and pursued as we try to enhance our ability to do risk assessment on specific use patterns.

In terms of enforcement activities, we are, in fact, primarily relying on following up on tips and complaints. We have largely delegated enforcement under this program as prescribed by statute to the States. They report that approximately 5 to 15 percent of their complaints deal with lawn care products, the use of them. We, in addition to that, maintain a hotline, a national hotline, called "The National Pesticides Telecommunication Network" which gives us another window on what pesticide uses are of trouble and concern to the public.

My testimony outlines a series of numbers there but basically between April and September of last year, they received something like 18,000 calls, many of those looking for information, 3200 of those roughly reported adverse impacts, and within that universe, 424 of those calls or roughly 13 percent were associated with lawn care where the caller believed there was improper uses of lawn care materials.

In terms of the claims on advertising——

Senator REID. Mr. Kimm, you are going to have to wrap this up real quick, your testimony.

Mr. KIMM. As was described this morning, by statute we can take enforcement actions against the people who manufacture and sell the pesticide but we are explicitly excluded from taking action against service companies that apply these materials. That's a statutory specific requirement.

Therefore, we have been working with FTC to try to work out a more effective way of following up on that but we have no legal authority in that area.

In terms of posting and notification, there are 30 States that have a variety of programs which run the gamut from registries of sensitive individuals to posting of a variety of circumstances. The agency has generally been supportive of that. We do not have a Federal policy at this point in time and it's one of the areas we are looking at to try to figure out what we ought to be doing in the future.

I would like to say a bit more on the integrated pest management. That is, there are a variety of techniques.

Senator REID. We have a number of questions we will ask you, Mr. Kimm. Your time has expired.

Dr. Zahm.

STATEMENT OF DR. SHELIA H. ZAHM, DIVISION OF CANCER ETIOLOGY, NATIONAL CANCER INSTITUTE

Dr. ZAHM. I do have a more lengthy statement that can be submitted for the record.

Senator REID. Your statement, along with Mr. Kimm's, will be made a part of the record.

The National Cancer Institute has had a long-standing interest in environmental causes of cancer. In the 1970s, we noted high cancer mortality rates among farmers in the midwest. These findings led to studies designed to identify whether agricultural factors might be associated with these excesses.

Two of the studies most relevant to today's hearings were conducted in the States of Kansas and Nebraska. Cases of cancer and controls, who are persons without cancer from the general population, were interviewed concerning their past exposures.

In the Kansas study, published in 1986, we observed an excess risk of non-Hodgkin's lymphoma among herbicide users in comparison to non-farmers. Risk increased with frequency of use to an eight-fold increase in farmers who mixed or applied herbicides 20 or more days per year. Use of the herbicide 2,4-D appeared to be responsible for the increase.

Risk was higher when the usual application method resulted in heavy dermal or skin exposure. Regular use of protective equipment such as rubber gloves lowered risk to about the same level as that among farmers who had never used 2,4-D. In addition, farmers who did not handle 2,4-D but had someone else apply it on their farms had roughly the same risk as non-users.

The Nebraska study, whose report has been submitted to a scientific journal, shows results similar to the Kansas study. The risk of non-Hodgkin's lymphoma increased with frequency of use of herbicides but to a lesser degree than found in Kansas, rising to a three-fold increase among farmers who mixed or applied 2,4-D 20 or more days per year. This study again demonstrated the importance of dermal exposure. Risk increased the longer the farmers usually wore the clothing used during the pesticide spraying.

In neither study did we evaluate risks to children or incidental exposures to farm wives through such activities as laundering contaminated work clothes. We did ask subjects, including non-farmers, about the use of pesticides on their lawns and gardens. These data might be of poorer quality than the data from farmers because of most non-farmers' lack of familiarity with the chemicals. However, in Kansas, use of lawn chemicals did not appear related to the selected cancers under study. The Nebraska data have not been fully analyzed yet.

Animal studies of 2,4-D are equivocal. A recent 2-year bioassay resulted in a significant increase in the incidence of brain tumors in male rats. However, since there was no similar increase in female rats, there is some question as to whether a causal relationship exists.

The mechanism for a possible carcinogenic effect of 2,4-D is not known. 2,4-D does not appear to cause changes in cell genetic material like many carcinogens do. It's been suggested that 2,4-D may affect immune response, which is strongly related to the develop-

ment of non-Hodgkin's lymphoma, or may affect certain enzyme systems or act as a promoter. Laboratory studies are being initiated at NCI to further investigate these issues.

There are several other relevant epidemiologic studies that are underway at NCI. First, we are conducting a study of a national lawn care service company, Chemlawn, to evaluate mortality among approximately 30,000 applicators. The existence of pesticide treatment records for each year and geographic location makes this population exceptionally valuable for study. The records eliminate the need to rely upon subject recall of exposure. We estimate the study will take 2 years to complete.

Another ongoing study of interest is an epidemiologic study of cancer among dogs. It was initiated because of case reports of lymphoma in dogs whose owners used pesticides on their lawns. Analyses of these data are underway.

NCI is also studying a cohort of Kansas County Noxious Weed Department employees who have daily exposure to herbicides, primarily 2,4-D, during the growing season. The county offices have detailed application records dating back several decades.

Another case control study of leukemia and lymphoma similar to the Kansas and Nebraska studies has been conducted in Iowa and Minnesota and is currently under analysis. Also in progress is a methodologic study to evaluate and improve exposure assessment in epidemiologic studies of agricultural exposures.

In summary, two NCI epidemiologic studies have shown an increased risk of non-Hodgkin's lymphoma among frequent agricultural users of herbicides. The herbicide which appeared to be responsible for the excess risks was 2,4-D, a herbicide commonly used in lawn care. Risk appeared limited to mixer applicators.

Our studies have not shown an excess risk of cancer among persons incidentally exposed to pesticides. However, they were not designed specifically to evaluate this type of exposure. The studies suggest that reduction or elimination of dermal exposure can decrease risk of users to that of non-users. The mechanism for the possible carcinogenic effect for 2,4-D in studies of farmers is not known but is under laboratory investigation.

Several related projects, including a study of lawn care service applicators, are underway.

Thank you.

Senator REID. Tell me, Dr. Zahm, why do you talk about non-Hodgkin's? What is the meaning of that?

Dr. ZAHM. It is a cancer of the lymph system. It is distinguished from the other major type of lymphoma called Hodgkin's Disease and that's how it gets its name, non-Hodgkin's lymphoma. It is a fairly rare disease. The average annual incidence rate is 11 per 100,000.

Senator REID. You specialize in cancer type disease?

Dr. ZAHM. Yes, that's right.

Senator REID. Were you here this morning?

Dr. ZAHM. Yes, I was.

Senator REID. Did you hear the testimony of the three individuals, the young man, the woman and the man whose brother died?

Dr. ZAHM. Yes.

Senator REID. Do you have any comment about that testimony?

Dr. ZAHM. The research that we do has not encompassed the types of illnesses that they experienced. Their illnesses were acute toxic responses. The kind of research that we are doing focuses on cancer, a chronic, long term outcome. We haven't done any research on the types of things that they are experiencing.

Senator REID. That's the same problem we had when we were doing the work on composite materials, that the chemical poisoning type cases that make people sick, non-cancer-related, there just hasn't been a lot of work done on that. I assume the same would apply here.

Mr. Kimm, your testimony was very interesting. It was confirmed earlier today with the State of New York indicating that EPA has cooperated fully with that State which is the only State bringing action. I think that is commendable.

Without getting yourself in trouble with your superiors, do you think it should be the responsiblity of individual States to enforce these laws or should the Federal Government have the more active role?

Mr. KIMM. I think in the environmental area, the normal pattern is that the Federal Government is responsible for implementing and enforcing its basic regulations. The general pattern is permissive that States can be more rigorous if they choose to be that. This particular statute has some very specific things spelled out in it that are fairly rare in terms of other environmental statutes.

Senator REID. Like you can't take action against professional lawn care companies?

Mr. KIMM. Right.

Senator REID. Do you know the history of that, how that ever got in the statute?

Mr. KIMM. No, I don't. I'd be happy to submit something.

Senator REID. Please do that, because that is a real curiosity to me which indicates more than ever that the Federal Trade Commission should be involved in some of these advertising claims because you are prohibited from doing so.

Mr. KIMM. We and FTC, to some degree at the impetus of the GAO investigations, have talked back and forth. Most recently we have actually gotten a draft memorandum of agreement and we are trying to set up a process in which we can get a number of these advertising kind of complaints and get FTC to process them at one time, but that has not been very effective in the past.

Senator REID. Mr. Kimm, the GAO, in their report, concluded:

> EPA has not completely reassessed the health risk of any of the major lawn care pesticides subject to registration. While EPA has made some progress in identifying the data, needs and conditions of reregistration for 23 of these pesticides, uncertainties about health risks still exist. For the two most frequently used lawn pesticides, diazinon and 2,4-D, EPA identified certain health risks associated with their use based on available data. However, EPA has called for additional data that may require as many as 50 months to obtain in order to complete the risk assessment.

Mr. Kimm, this is the same problem we had, as you know, with alar. We didn't deal with 50 months there. We were getting into 25 years. I just think that we have to speed up this process in some way. If you have some information you can give us on how we can improve this statutorily, then we will work on that.

Mr. KIMM. I'd be happy to try to. The scientific information never comes to us as a finished package with a bow on it so that you have all of the information you want at one point in time. So we are constantly looking at increasing amounts of information and trying to determine at what point we have sufficient information to take action.

Senator REID. How could the EPA allow the use of diazinon on residential lawns but not on golf courses?

Mr. KIMM. The diazinon case had to do with that our principal finding for taking action against the golf courses and the sod farms were bird kills for which the exposure patterns, large green areas, typically around water, that's the only data that we had that enabled us to make what we thought were the necessary findings.

Again, to take a license away from someone under this statute, we bear the burden, if you will, of making the unreasonable risk finding.

In terms of the other chemical and the 50 months, there were some animal studies that were conducted. We felt they were not conducted at high enough levels of exposure, called the maximum tolerable dose, and we have ordered another set of those studies.

We have read the Kansas study and internally, our scientists found it inconclusive. At that point in time, we have said publicly and intend to follow up on the other two epidemiological studies when they become available, and we will subject them to independent review, then we will make an agency determination and we may move to regulate on the basis of that information when we see it.

We have seen the Kansas study, we have not seen the Nebraska study, and I don't know where the third study is. As soon as that information is available, we will deal with it. If we think we have an adequate basis to take action, we will and not wait for this next generation of animal studies. It is the nature of the science and that's kind of the problem we face.

I think you know from tracking some of our other activities, we have in the past moved before studies were totally completed when we thought they reconfirmed the concerns we had in the first place.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman. Thank you for being here, Mr. Kimm.

I am trying to put all this together that I heard earlier today and from yourself. One of the problems clearly here is that these basic 34 chemicals that are used in most lawn pesticides have not, according to everyone's testimony, been reregistered.

Mr. KIMM. They are in the process of being reregistered.

Senator LIEBERMAN. For instance, am I correct that 2,4-D was registered in 1948, does that sound right?

Mr. KIMM. I think that is basically correct.

Senator LIEBERMAN. So in 1948, the state of the science would have obviously been a lot less developed than it is today?

Mr. KIMM. Certainly the concerns were different then and the science has evolved over time in terms of how we conduct risk assessments and the mainstream thinking of the scientific community.

Senator LIEBERMAN. Concerns are different and I think, as you just suggested, probably the context, the attitude of the regulator, those people who were reviewing was different.

Mr. KIMM. Absolutely.

Senator LIEBERMAN. Because there wasn't as widespread a concern about environmental problems at that time. There may have been some concern, I hope, about the impact on those who were using them most frequently.

Mr. KIMM. If it was 1948, there was probably very little concern about potential carcinogenic responses and became more of a regulatory problem in the 1960s and from then on.

Senator LIEBERMAN. So we've got this stuff on the market now and it's carrying at EPA a number which suggests safety. As you said yourself, the original premise was that the benefits exceed the risks and if used properly, there was no unreasonable risk of harm and yet we have this growing body of data that suggests problems which your own people are looking into.

I want to pursue with you, in light of the fact that it takes so much time and maybe you don't have the personnel to do it as quickly as you want or the studies aren't coming in as quickly, doesn't EPA have an obligation to warn the public along the way at least to say or to force the companies to say on these bottles, some studies have shown that this stuff may cause cancer?

Mr. KIMM. We have said in many forums—we are in the process of putting out an interpretative rule to say it again—that we view that there are some risks associated with all pesticides. The things that kill living creatures have toxicological risks, all of them do.

We have taken as our policy, and reinforced it in the case in New York that was described earlier, that simply stated, our policy is it is inappropriate for anybody advertising these products to call them safe or to say that they are non-toxic, or to say that they are government-approved without all the appropriate caveats.

That has been our policy. We are in the process of reiterating that policy. Unfortunately that has not been well understood by the public and we have more work to do to get our message out.

Senator LIEBERMAN. That is what I was going to suggest. I appreciate what you're saying but it seems to me that never gets out to the public. The one thing I gather you have authority over now is what these containers say and they are misleading, in my opinion, very misleading, or inadequate in the information. They are not quite as misleading as some of the statements that we've seen from the lawn care companies which affirmatively say what we're using, as the Attorney General from New York said today, is safe and practically non-toxic, even thought that's not the case. I understand those are out of your control.

Mr. KIMM. They are inappropriate but they are out of our enforcement control.

Senator LIEBERMAN. They are out of your enforcement control. Let me go back and ask this question.

How long do you think it will take, all things being equal, for EPA to conclude the reregistration process of these 34 basic lawn chemicals? The 48 months we talked about, I gather, was just for 2,4-D?

Mr. KIMM. The universe is 600 chemicals, about half of them have food uses and so they are at the front end of the que. That's where these are. I think that I reviewed a schedule this morning that had 1996 as the outside date. By statute, all of them are to be completed over the next 9 years. My expectation would be that the vast majority of them would be coming through the system before 1996. Again, it is dependent on the availability of the full scientific data because ultimately our regulatory decision is likely to be challenged by registrants and we've got to be able to substantiate the finding of unreasonable risk.

Senator LIEBERMAN. So you think you can complete the whole bunch of them in 3 years?

Mr. KIMM. The food use subset of these 34, the high 20s, when I reviewed that list this morning—I will go back and check it for you—I believe that the furthest one out was for 1996.

Senator LIEBERMAN. Because the 2,4-D studies are not going to be conclusive until 1994-1995.

Mr. KIMM. Again, I will have to go back and check it, I believe the second generation of these rodent studies have already begun, so it might not take them the full 5 years to get them to completion, but I'll have to go back and check the records. I'll be happy to provide that.

[The following was subsequently supplied:]

Insert for page 100

April 1990

COMMON LAWN CARE PESTICIDES

REREGISTRATION STATUS

Ready for Reregistration

Sulfur

Reregistration Anticipated in FY-91

*Glyphosate (Roundup/Kleenup)
Acephate (Orthene)

Reregistration Anticipated in FY-92

*Mecoprop (MCPP)
Diphenamid
Pronamide (Kerb)

Reregistration Anticipated in FY-93

*2,4-D
*Dachtal
*Diazinon
*Dursban (Chlorpyrifos)
*MCPA
Bendiocarb (Turcam) (restricted-no homeowner use)
Methoxychlor

Reregistration Anticipated in FY-94

*Betasan
*MSMA
*Oftanol
Bayleton
Benefin (Balan/Benfluralin)
DSMA
Endothall
Siduron
Ziram

Reregistration Anticipated in FY-95

*Atrazine (Triazines)
*Maneb (Special Review)

Reregistration Anticipated in FY-96

*Benomyl
*Carbaryl (Sevin)
*Chlorothalanil (Daconil/Bravo)
*Dicamba (Banvel)
*PCNB
*Trichlorfon
DDVP
Malathion

* High Use

32 Total

18 High Use

14 Common Use

Senator LIEBERMAN. Let's assume it is even 3 years—respectfully, I think that is an incredibly optimistic conclusion. I hope it happens but I think it is very optimistic. What are we going to do for the next 3 years to give the public adequate warnings of the danger that may be involved here? I can't reach a conclusion from what I heard this morning, from what I read, I'm really troubled about it. I know some of these I wouldn't want to use on my lawn; I wouldn't want my two-year-old to be running around the lawn after it had been used. What can we do between now and the time when you're done?

Mr. KIMM. I think that you all have suggested this morning that we look more aggressively at trying to find a workable way of dealing with this false advertising problem that we're looking at. That's one of the things that can be done effectively.

We are also trying to expand our pollution prevention/integrated pest management information. It seems to me that the only protection that the homeowner really has is an education program at least in terms of dealing with unscrupulous sales pitches. I think those are principal areas we need to deal with.

In the event that these other epidemiological studies that are close at hand are convincing, we may take regulatory action sooner, but again, science comes to us like a freight train and you kind of watch it go by, and when you reach a point where you feel you can make a finding and then substantiate that finding through a fairly rigorous process that we have to go through, that's the point at which we'll act.

In the meantime, I think you would agree, we need to find more effective ways of making sure the public understands these are not inherently safe or benign chemicals.

Senator LIEBERMAN. Am I correct that some of these EPA has concluded are probably human carcinogens?

Mr. KIMM. Yes. There are a number of them in which there is some evidence of carcinogenicity. Our risk assessment methods though take us the next step where we try to look at the magnitude of that risk and we don't necessarily remove a pesticide from registration because it has shown a carcinogenic response.

Senator LIEBERMAN. So in fact, there are some lawn chemical products that do continue to bear the label, "EPA-registered," which does suggest some level of safety for the public, but at the same time, you've determined that they are probable human carcinogens.

Mr. KIMM. There is some evidence of carcinogenicity associated with their use, that's correct.

Senator LIEBERMAN. Don't you think it's irresponsible to continue to give what seems to be at least a partial governmental approval of the product when in fact you have some evidence of carcinogenicity?

Mr. KIMM. Again, our requirement, our statutory responsibility is to look at risks and benefits and absent some explicit legislative authority that said anything that showed a carcinogenic response wouldn't be approved for this use, I don't think we would withstand a court challenge if we tried to act as you——

Senator LIEBERMAN. Maybe we have to give you that authority, because it seems to me that the Government is part of the problem

here. If we are continuing to put this okay seal of approval on it and at the same time you have some evidence it's carcinogenic, we've got an obligation to tell the public just that, there is some evidence this may be carcinogenic.

Mr. KIMM. The President has in front of the Congress as we speak a food safety initiative proposal which does have a variety of components aimed at streamlining the administrative framework through which we operate. Enactment of those changes would give the agency a variety of tools to move much more quickly in the face of new perceptions of risks about old pesticides.

Senator LIEBERMAN. Just a final question. Is any of the problem for you that you don't have enough personnel to conduct these studies?

Mr. KIMM. No manager in the Government worth his salt has ever passed up an opportunity to say, of course, what we are allocating are limited resources. There were a number of comments this morning about, it wouldn't take Sherlock Holmes to clip out these ads, work out some effective program with FTC and get on with enforcing against some of the more outrageous advertising. In fact, we are going to go back and take a very hard look at that.

On the other hand, in the real world, the resources we are allocating are the same group that are overseeing the laboratories, that are looking at the quality of the data being generated by the laboratories.

Senator LIEBERMAN. My understanding of EPA's budget proposals to Congress are that they don't seem to contemplate the number of reregistrations that you are suggesting by 1993. I'd urge you to ask us for what you need to do that.

Mr. KIMM. I am sure they have but it doesn't get past Mr. Darman's office.

Senator LIEBERMAN. Maybe that's the problem.

Dr. Zahm, I just want to clarify, do you work full time for the National Cancer Institute?

Dr. ZAHM. It's the only place I work. I am actually a part-time employee.

Senator REID. What is your professional background and experience?

Dr. ZAHM. I have a doctorate in epidemiology from Harvard University and I have worked for NCI for the last 10 years.

Senator LIEBERMAN. So you actually conduct these studies yourself?

Dr. ZAHM. Yes.

Senator LIEBERMAN. You are not presenting data to us today that you have reviewed from others?

Dr. ZAHM. No. I was the lead investigator on both the Kansas study and the Nebraska study and I am the lead investigator on the Chemlawn study that's underway.

Senator LIEBERMAN. Based on what you know, I take it you wouldn't want to use 2,4-D yourself?

Dr. ZAHM. That's right.

Senator LIEBERMAN. Thank you.

Senator REID. Thank you very much. We appreciate your time and efforts and your patience.

The fifth panel today will consist of Ms. Anne Bloom, from Public Citizen, Washington, D.C., together with Jay Feldman, National Coordinator, National Coalition Against the Misuse of Pesticides. Welcome to the committee. Ms. Bloom would you proceed?

STATEMENT OF ANNE BLOOM, STAFF ATTORNEY, PUBLIC CITIZEN

Ms. BLOOM. Good afternoon. My name is Anne Bloom and I am a staff attorney with Public Citizen. There has been some really informative testimony before me, so I am going to try to be very brief and summarize my testimony and ask that the full statement be included in the record.

Senator REID. That will be the order.

Ms. BLOOM. I would just start by saying that Public Citizen commends the subcommittee for conducting this hearing. We think it is a crucial step towards providing better health and safety protection to American citizens. We appreciate the opportunity to present our views.

Although public attention has focused on the health risks stemming from agricultural uses of pesticides, pesticides are also used widely in urban environments. Little is known about the health and environmental impacts of this widespread use. Most urban use pesticides have not been tested for their entire range of health effects and are not likely to be completely tested for many years.

While the dangers associated with many pesticides are not entirely known, we do know that children are particularly at risk of developing health problems from exposure to pesticides. Children are more likely, by virtue of their lifestyle and playing habits, to come in direct contact with pesticide residues.

Also, since children are in a growing state, more of their cells are rapidly dividing. Toxins, especially carcinogens, are particularly damaging to rapidly dividing cells making children unusually susceptible to developing a health problem from exposure to pesticides.

Finally, children who are asthmatic or suffer from other allergies are even more susceptible than other children to experiencing health problems from pesticide exposure.

Despite these enhanced risks to children, pesticides continue to be used in two areas where children are particularly likely to be exposed—in schools and on lawns. Public Citizen has published two studies specifically addressing the use of pesticides in schools and in the commercial lawn care industry.

"Contaminated Classrooms," released in September 1988, addressed pesticide use in Washington, D.C. area schools. A year ago, we completed a two-part study on the commercial lawn care industry called "Keep Off the Grass." I would like to have these reports included in the record if that is possible.[1]

Senator REID. That will be the order.

Ms. BLOOM. "Contaminated Classrooms" found that a number of chemicals applied in Arlington County and D.C. public schools raised serious health and safety concerns. In contrast, the Mont-

[1] The reports referred to have been retained in committee files.

gomery County School System received high grades for its successful implementation of pest prevention practices and the use of least toxic pest control treatments.

The differences between the practices in the different schools demonstrates both the overuse of pesticides in school environments and the potential for effective pest management without heavy reliance on chemical treatments.

Turning to our study on lawn care, "Keep Off the Grass," we'd like to note that in 1987, over 7 million American households used professional lawn care companies to create the so-called picture-perfect lawn.

Part I of Public Citizen's "Keep Off the Grass" reviewed the health effects of pesticides most commonly used by the commercial lawn care industry. Of the 40 pesticides that comprise over 95 percent of the chemicals used by the commercial lawn care firms, 12 are suspected human carcinogens, 21 have been shown to cause other long-term health effects in lab animals or humans such as birth defects and gene mutations, and 20 have been shown to cause short-term damage to the central nervous systems of humans.

Part II of Public Citizen's "Keep Off the Grass" surveyed pest control officials in 50 States and the District of Columbia about the rules governing the commercial application of pesticides in residential areas. We found the results quite disturbing. Most States do not require every commercial pesticide applicator to be trained, tested and licensed. These actions can reduce the risk of accidental poisoning.

Moreover, citizens in 41 States and the District of Columbia are not provided any legal right to be notified before or after pesticides are sprayed. Finally, 47 States and the District do not provide consumers with information regarding the potential hazards of lawn care pesticides.

We believe that EPA could do much more to insure that consumers receive adequate and truthful information about pesticides. Requiring lawn care companies to provide their customers with EPA-developed fact sheets on pertinent known and potential short and long term health risks of commonly used lawn care chemicals would be an excellent first step. Also, the agency should, with the FTC, step up its action against false and misleading advertising.

I would also like to mention that many local governments are trying to step in to fill the information void and we are currently representing two of them in court. These local notification ordinances simply provide the consumer with information and we really do not understand how lawn care professionals could object to consumers receiving this basic information.

I would conclude by just making a few recommendations. I will add that we certainly agree with many of the recommendations already offered today by Attorney General Abrams, GAO and others. I think it is worth reiterating that EPA should not be permitted to find that the benefits of purely cosmetic uses like that in lawn care of potentially carcinogenic pesticides outweigh the risks, as they currently do.

The agency should also restrict or ban those pesticides that may cause neurosystem damage. Also, advance notification should be

provided to chemically sensitive residents and the posting of warning signs should be required where spraying has occurred.

Finally, effective alternatives should be encouraged. A broad range of non-chemical pest control methods offer safer, effective alternatives. Following our release of "Contaminated Classrooms," EPA agreed that they could provide better guidance on integrated pest management to schools and they formed a working group to provide that information to schools.

We are very optimistic about the potential for this group and we urge this subcommittee to oversee its efforts and further encourage EPA to promote integrated pest management.

Thank you.

Senator REID. If you will remain seated while Mr. Feldman testifies, then we will have some questions for you.

Please proceed.

STATEMENT OF JAY FELDMAN, NATIONAL COORDINATOR, NATIONAL COALITION AGAINST THE MISUSE OF PESTICIDES

Mr. FELDMAN. Good afternoon. My name is Jay Feldman. I am National Coordinator of the National Coalition Against the Misuse of Pesticides.

I too applaud you for holding this hearing and would like to jump into some of the issues that have been raised by EPA, particularly the claim that they are forced to substantiate findings of unreasonable risk.

Under FIFRA, the Federal Act you have a lot of experience in reviewing, you know that EPA may register a pesticide if it determines that the benefits outweigh the risks. Those who use pesticides have a right to expect that they will receive benefits commensurate with the risk they take and to which they expose their family, neighbors and the environment.

While EPA has attempted to do a partial benefits analysis to pesticides on the market which have exceeded certain risk criteria established by the agency, no analysis is conducted at the front end. Therefore, barring evidence of extraordinary risks, EPA assumes that benefits outweigh the risk in the initial registration process.

This is a critical point which I don't have time to go into detail on here but the fact of the matter is that EPA, by virtue of not doing a benefits analysis in claiming in public forums like this that these materials are registered under risk benefit calculation fails the public's confidence.

When it comes to nonagricultural pesticides, particularly those used for lawn and landscape care, EPA has failed to comply with the most basic of benefits review. NCAMP has undertaken a study to look at the EPA benefits review and, in fact, cannot find anyone at the agency that wants to even give us a stab at how they go about doing a benefits review for nonagricultural pesticides.

In this committee, you have reviewed alar and of course in that context, you saw some numbers associated with agricultural production, losses and so forth. In this case, we don't see anything, we don't see any analysis.

Another point here is that many people within the agency do not concur with what has been told to you today by the EPA. There is

an internal memorandum dated January 1988 which is referred to as a Lawn Pesticide Policy Group Briefing Paper. In that paper the agency reveals or the staff reveals:

> In order to provide meaningful exposure estimates for homeowners and other individuals who may be exposed to pesticides via contact with treated home lawns, the Exposure Assessment Branch would need to do dislodgable residue data, * * * which is something EPA doesn't do. Children with their playing habits may be subject to the greatest exposure levels, * * *

as we discussed earlier this morning.

Coincidentally, a month later in February 1988, EPA released its Lawn Care booklet and in that booklet it described a very concise, regulatory review process which led to an EPA approval of a pesticide and indicated that if people are trying to seek a nice green lawn can seek a number of chemical intensive methods in that process. In fact, we are also dealing with EPA's own publications, misleading the public on these questions of safety just as you've heard talk today about problems with the industry misleading the public.

The science is clear, and I think we have documented quite clearly from toxic sensitization, which was recently discussed in a study presented to the State of New Jersey, two questions of elevated cancer risk among children, which has gone up some 20 percent since the 1950s, a phenomenon thought to be relatively rare in children and we hear of the victim's stories. You heard some this morning.

We, on a daily basis, as a clearinghouse for citizen concerns, hear from people in Phoenix where we heard of rashes, headaches, swollen face as a result of pesticide use in schools. A Florida elementary school had to be evacuated two days after pesticide drift from a neighboring park left 35 students suffering nausea, eye, nose and throat irritation. Marianne Johnson lost her dog as a result of 2,4-D and MCCP use on shrubs. The stories go on and on and on, and in some cases, there is successful litigation, as in the case with the woman who contracted with Chemlawn, woke up the morning after her treatment of dacthal, triclopyr and 2,4-D with hives on her arms, legs and outbreaks of rashes. She was fortunate enough to get a $67,000 award.

I think the point has been made here that there are alternatives. To our friends in the industry, what we say is that there are methods or practices, there are jobs out there for alternative pest management practices that can work and that do work.

In closing, I would simply like to say that EPA has over and over told us what their stand on advertising is. I've attached for you in my full statement a letter written to one of our board members in North Carolina on this question of advertising where EPA simply washes its hands under FIFRA of any responsibility as it affects pesticide applicators.

Today's statement from EPA I think neglects the fact that EPA has a formal ruling on this issue. We don't need to collect more information from EPA, we need to move ahead and change FIFRA.

In the words of Rachel Carson, I just would like to quote for you:

> How could intelligent beings seek to control a few unwanted species by a method that contaminated the entire environment and brought the threat of disease and

death even to their own kind? Future generations are unlikely to condone our lack of prudent concern for the integrity of the natural world that supports our life.

Thank you.

Senator REID. Thank you. One of the difficult things we found in preparing for this hearing is that if someone is concerned, it is next to impossible to find information on how you can apply non-chemical substances to your lawn. We had a hearing previously dealing with pesticides and fungicides where the Agricultural Commissioner from the State of Texas came, Mr. Hightower, and he talked about a program that he had initiated there where he, in effect, gave a little bonus to farmers who produced non-chemical foods, foods produced on farms not using chemicals. What alternatives are there to lawn chemicals?

Mr. FELDMAN. We are really talking about cultural practices, both in the area of agriculture and non-chemical methods. There are very specific steps that we recommend to people, including the types of grass species that are chosen, the type of dethatching that is done, aeration, the kind of watering, the height of the grass, cutting the grass, so there are cultural practices that can be used and have been used successfully.

The question is, to get the industry to begin adopting what in some cases may be a little more labor intensive methods and practices, but there are many, many guides out there. One I have referred to in the context of this hearing in my testimony that provide the consumer with a step by step process.

The other thing to keep in mind that we lose sight of in both agriculture and non-agriculture, is that we often try to bring in non-indigenous species into areas where they are going to be vulnerable to pest infestation and disease. We have to be very careful about this.

The last point here is that EPA, as a regulatory agency, should have as its mission protection of the public health and environment, should be technology forcing in this area. It's EPA's role to say to the industry, we know it can be done these ways, the proof is there, and despite the fact you would prefer to do it another way for whatever reason, in the interest of public health protection, we don't feel the benefits outweigh the risks.

Senator REID. Ms. Bloom.

Ms. BLOOM. I would just say there are several good books out there; I think most consumers don't know about them. The kinds of things that would be useful just off the top of my head from our perspective, we get a lot of calls from consumers, and we frequently refer them to the Pesticide Telecommunications Network when they are concerned about a particular pesticide, which is a project in conjunction with EPA done by the University of Texas.

I think it would be great if hotlines like this gave out IPM information over the phone. Also, EPA could provide a lot of information, especially in the cases of schools which they are doing on how to switch to IPM. Again, it has to be driven by pesticide regulation.

Senator REID. What would either of you tell a homeowner who is thinking of hiring a lawn care service?

Ms. BLOOM. I'd like to answer that because my mother has just gone through this and we had quite a debate over it.

It is very difficult to recommend lawn care companies because we can't go out and personally evaluate each one. Generally what we give out is sheets which tells consumers the right questions to ask of the company they are going to be working with and things to look for in a contract.

Mr. FELDMAN. The name of our pest control sheet in this area is called "Least Toxic Control of Lawn Pests." Our approach generally when it comes to pesticides is to ask people to identify their pest management goal and go about it in a manner that requires least toxic methods, starting with non-chemical and ending up with what might be identified as a least toxic approach.

Senator REID. Mr. Feldman, but the problem is, who is going to give you this advice?

Mr. FELDMAN. At this point, we are reliant on a number of public interest groups and individuals in the industry. We had a conference this weekend with 200 people from across the country and we had two sessions on what we call pest control operators on the cutting edge and they represent the forefront, the vanguard of the pest control industry. They have taken it upon themselves to offer this service. I understand Chemlawn is developing such a service at this point.

Senator REID. What kind of a service?

Mr. FELDMAN. What they would call an organic service, a non-chemical service. So EPA is lagging way behind and Congress, unfortunately, given the status of FIFRA, is lagging way behind. The public, with its own fortitude, has sought out information from public interest groups and those in the private sector that are providing this information.

Ms. BLOOM. I would like to add one thing. I think there are two issues, one, should some of these chemicals be on the market for consumers to use, and the second issue is, if they are on the market, how do we give consumers enough information about them.

Our answer to that first question is, a lot of these chemicals should not have been approved for lawn care use. It's a purely cosmetic benefit. There is no reason for people to be subjected to a carcinogenic risk for a purely cosmetic benefit.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman. I thank the two witnesses for their testimony and their pioneering work in this field generally. I regret that I have to leave for another hearing that's important to Connecticut but I wanted to ask you for some thoughts about the specifics of what we might do in the whole area of notice on spraying of lawn chemicals. What is an ideal Federal law in general going to look like in this area?

Mr. FELDMAN. An ideal situation, first of all, includes pre-notification, both in the form of posting, pre-posting and pre-notification by way of leaflet to the neighborhood where an application will take place. The information should include the range of knowledge that we have, that the regulatory agency has on the safety of the product up front, the basic issues you've been talking about throughout this hearing.

Senator LIEBERMAN. In other words, suggest that it may create unusual reactions in some people?

Mr. FELDMAN. Right, or that this material has not been tested and list the areas it has not been tested in; where we know that there are problems, that information would be listed as well, but I think it's very important to dispel this myth that the agency somehow has calculated that benefits outweigh risks.

I think if the public understands that these materials are subjected to a risk benefit calculation—which our Federal regulators at the highest level cannot attach a number to, they cannot tell us that carcinogens will come off, they can't even tell us what level of exposure carcinogens will come off—that the public has a right to know the regulatory standard in plain and simple terms as to what these chemicals are being regulated under. We also have to know what chemicals are being used, not just generally but specific to that site at that time. People need very specific information.

Quite frankly, I think in many respects it is an unworkable system and I think the better approach is to try to get——

Senator LIEBERMAN. You mean the notice system?

Mr. FELDMAN. Yes, to get a better handle on taking a lot of these materials off the market and replacing them with technologies that protect people and work.

Senator LIEBERMAN. Ms. Bloom.

Ms. BLOOM. I would just add to that there is a need for sensitivity registers. A lot of places do not have them where people can register that they are sensitive and be notified.

Senator LIEBERMAN. Ms. Malhotra, I think, said that Pennsylvania had a registry system but the companies are not required to notify people living in the area, they are only requested to do so. Do any States have a mandatory system of notification?

Mr. FELDMAN. Of notification

Senator LIEBERMAN. Yes, notification in the sense that if you sign up for the registry and say, I've had unusual reactions to lawn chemicals, that they are obliged to notify you when they are spraying in your neighborhood?

Mr. FELDMAN. Most States do not take that approach. Pennsylvania is a State I'm aware of that does that and it doesn't work very well. Other States require some posting in the newspaper in a very small public notice section. Others simply put the onus on the applicator to get the information out.

Senator LIEBERMAN. Do you think we should be banning more of these or do you think there is hope in proper notice to people in the area that is being sprayed?

Ms. BLOOM. In most cases, it really depends on what the science says on a particular pesticide, but in the case of 2,4-D, for example, which is a very widely used home use chemical, we've got human epidemiological evidence. That's pretty scary. I think it should be taken off the market, at least for lawn care uses if not completely.

Senator LIEBERMAN. That is an important point. One of the things that we've found in our other work, in other pesticides, is some questioning of the reliance on data from laboratory animals, but then we also say, what is our choice, shall we experiment on people. Here, in fact, inadvertently there has been experimentation on people and it is alarming data that comes from it. I thank both of you.

Thank you, Mr. Chairman.

Senator REID. We appreciate your help.

The next panel consists of Mr. Craig Taylor, President and Chief Executive Officer, Safer, Inc. from Newton, Massachusetts and Dr. Michael Kelty, Vice President and Director of Research, O.M. Scott and Sons, Marysville, Ohio. To both of you especially, I apologize, having come from long distances for having to wait. We wanted to get to you this morning but were unable to do so because of the objection that we talked about. Mr. Taylor, would you proceed?

STATEMENT OF CRAIG TAYLOR, PRESIDENT AND CHIEF EXECUTIVE OFFICER, SAFER, INC.

Mr. TAYLOR. Thank you, Mr. Chairman and members of the subcommittee.

My name is Craig Taylor, President and Chief Executive Officer of Safer, Inc. It is a pleasure for me to be here today at this most important hearing regarding lawn care and chemicals used in the industry. In the interest of time, Mr. Chairman, I would like to submit my written testimony for the record and make several observations.

Senator REID. Your full statement will be made a part of the record.

Mr. TAYLOR. First, there is an evolution of chemistry that holds great promise for the availability of new, less toxic products in nonagricultural as well as agricultural use. Concurrently, there is a revolution taking place in the United States and overseas pushed by consumers who believe they are being involuntarily exposed to harmful substances.

We see these concerns in production, distribution and consumption of food. We see these concerns in the public outcry over management of one of our most precious natural resources, water.

Second, my company and many others are involved in seeking solutions to these concerns. We are involved in the research and development of new technologies that will hopefully diminish or eliminate these problems but, as I note in my prepared statement, current FIFRA regulations do not allow companies to make truthful and accurate safety claims on product labels.

I think the Congress and EPA should reexamine this policy.

Senator REID. What you are saying is the EPA won't allow you to make truthful statements but the law is, without placing blame, that people can make untruthful statements?

Mr. TAYLOR. That's correct, Mr. Chairman. It's a well-intentioned policy but it doesn't work for us or consumers of our products.

Third, Safer's market research shows that 85 percent of U.S. consumers would prefer to use alternative pesticides. However, only 2 percent can identify any of them by name. Labeling is critical for purchases of food and drugs and equally critical for consumers of pest control products around their homes. But, it is imperative that benefit as well as risk information is conveyed to consumers. If we want to go forward and reduce the dangers to our environment, we must insure that people can confidently choose products that make a difference.

Finally, Mr. Chairman, the lawn care market is no different from any other pesticide market. It exists because there is a need.

Safer finds it to be an attractive opportunity because we believe that our technology can provide homeowners with products that assure control as well as better environmental stewardship.

In the absence of more cogent, more modern and less restrictive promotional regulations, we will be unable to inform our market. This is not acceptable to us and we hope it is not acceptable to you.

Thank you for the opportunity to appear and testify and I'd be happy to answer any questions.

Senator REID. We will have some questions for you as soon as Mr. Kelty completes his testimony.

STATEMENT OF MICHAEL P. KELTY, VICE PRESIDENT AND DIRECTOR OF RESEARCH, O.M. SCOTT & SONS CO.

Mr. KELTY. Mr. Chairman and members of the subcommittee, my name is Michael Kelty. I am Vice President of Research and Development for the O.M. Scott and Sons Company.

The Research and Development Department of Scott is the world's largest single organization which focuses solely on developing improved products for the care of turf and ornamental plants. I am pleased to testify today before you and I ask that my full statement be inserted for the record.

Senator REID. That will be the order.

Mr. KELTY. The O.M. Scott and Sons Company has been successfully providing lawn and gardening products for more than 100 years. It is estimated that nearly 53 million households purchase lawn and garden products annually. Today, Scott is the largest manufacturer of do-it-yourself lawn care products and the leading supplier to the professional turf care manager. Through our Hyponex Division, Scott also has the leading position in organic lawn and garden products.

Scott's typical do-it-yourself lawn care products have the following safeguards: clear, EPA-approved directions and precautions; active ingredients that are reviewed and approved by EPA and clearly listed on the label; specific formulations are also reviewed and approved. Our formulations are tested by Scott to be agronomically efficacious as well as toxicologically and environmentally safe.

Our products are typically packaged as dry, granular material that is intended to be applied with mechanical spreading devices just inches above the turf. This minimizes the potential for drift and also allows for the clean-up of any spillage that occurs. All of our pesticides are in dilute form so the homeowner is not exposed to concentrated materials.

Prior to submitting a product for registration, Scott intensely reviews and tests its products and only active ingredients that pose no unreasonable adverse effects are submitted for registration.

Scott uses these same standards for the inert ingredients in our products. Our inert ingredients are selected from the FDA's GRAS List (Generally Recognized as Safe) and/or EPA's List of Inert Ingredients that are exempted from the requirements for tolerance.

We support fair and accurate advertising of lawn care products and believe that the EPA and FTC currently have the regulatory powers to prevent false and misleading advertising claims.

In assessing the risk benefit equation for maintaining quality turf and ornamental plants, the argument is often advanced that the benefits of turf grasses are purely cosmetic and therefore, unimportant. This statement, in our opinion, is wrong.

In addition to providing meaningful aesthetic value, lawn turf grass is plays an important functional role in improving our environment. These benefits include oxygen generation, air purification, soil erosion control, temperature moderation, noise abatement, and providing safe recreational playing fields.

The beneficial environmental impact evolving from each of these factors is described in greater detail in my written statement in which university and Government studies are detailed.

In conclusion, I would like to emphasize that as a leader in the lawn and garden industry, the O.M. Scott and Sons Company exercises the utmost care in development, marketing and use of its products. The facts we've presented to the subcommittee today clearly show that do-it-yourself products are safe, they present no health or safety risk to people or to the environment, and existing law and regulation regarding the do-it-yourself lawn care products are adequate.

As demonstrated, well-maintained turf and ornamental plants yield significant aesthetic and environmental benefit. Properly exploited, these benefits can greatly add to the quality of our life, particularly in the urban and suburban environment. To pass turf and ornamental plants off as purely cosmetic I think is wrong and narrow-minded. We will not derive the benefits of turf without judicious use of lawn chemicals.

Mr. Chairman, I want to thank you for the opportunity to appear before the subcommittee today and discuss the use of lawn and garden products. I will be pleased to answer any questions you may have.

Senator REID. I note you have a doctorate by your name. Tell me what kind of a doctor you are.

Mr. KELTY. Yes. I have a Ph.D. in environmental science.

Senator REID. Mr. Kelty, you've heard the statements and questions about some of these products which we have up here on the counter?

Mr. KELTY. Yes, sir.

Senator REID. Do you think they are safe?

Mr. KELTY. In fact, one of our products is represented.

Senator REID. Which one?

Mr. KELTY. The one with the funny-looking applicator.

Senator REID. This one here, okay.

Mr. KELTY. Yes, sir. I do think it is safe for its intended use.

Senator REID. What about Mr. Prior whose brother died as a result of being on a golf course?

Mr. KELTY. Senator, I've certainly read about the Prior case, I don't have detailed knowledge. We don't make daconil-containing products, so I really would rather not comment in a detailed way.

Senator REID. You heard Dr. Zahm testify that she would not use this stuff if she had a choice?

Mr. KELTY. Yes.

Senator REID. What do you think of her statement?

Mr. KELTY. Senator, when I joined O.M. Scott nearly 10 years ago, I spent a good part of a year studying 2,4-D because our company wanted to arrive at a position and I found there to be a fairly large database on toxicological studies regarding 2,4-D. I had that reviewed by several toxicologists outside of our company to give us a review and we concluded that this chemical was a safe chemical to continue in our product line.

Since that time, there has been a lot of study on 2,4-D and the experts tell us that it retains that characteristic as being a safe tool.

Senator REID. But you heard Dr. Zahm. She is a person who is doing a study dealing with people in Nebraska and Kansas and the information that she has indicates that those people who are exposed to this chemical have a much higher incidence of cancer than those that aren't.

Mr. KELTY. Senator, in keeping up on this issue, many toxicologists independent of this industry don't come to that same conclusion.

Senator REID. Independent of this industry?

Mr. KELTY. I mean without being employed in this industry, academic toxicologists. There was a recent gathering of public health officials at Harvard. This was within the last month that I read this. They reviewed all the data on 2,4-D and they did not conclude that it is a possible human carcinogen.

Senator REID. Who are these people?

Mr. KELTY. To my recollection, it was a group of public health officials who had a symposium at Harvard University I think within the last month or so.

Senator REID. If you could find that information, we'd sure appreciate it.

Mr. KELTY. I will gladly do so.

[The information requested follows:]

THE WEIGHT OF THE EVIDENCE ON THE HUMAN CARCINOGENICITY OF 2,4-D

January 1990
Final Report

Program on Risk Analysis and Environmental Health

Harvard School of Public Health
677 Huntington Avenue Boston, Massachusetts 02115 617 432-1090

HARVARD UNIVERSITY
SCHOOL OF PUBLIC HEALTH

DEPARTMENT OF HEALTH POLICY AND MANAGEMENT
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677 Huntington Avenue
Boston, Massachusetts 02115

February 1, 1990

Dr. Richard E. Stuckey
Director
The National Association
of Wheat Growers Foundation
415 Second Street, N.E.
Suite 300
Washington, DC 20002

Dear Dr. Stuckey:

In response to your request for an independent review of the evidence on 2,4-D and cancer, I have the pleasure of transmitting to you the final report of the workshop held October 17-19, 1989. The report considers both the toxicological (animal) and epidemiological (human) evidence.

The toxicology data by itself provides little reason to expect that 2,4-D causes cancer in people. Experimental studies have shown an excess of brain tumors in male rats at the highest levels of exposure but not in female rats or mice of either gender. Further research is necessary to generate reliable data on the effects of high doses ingested by male rats. If 2,4-D is ultimately shown to be an animal carcinogen, it is unlikely to be a very potent one.

Weighing the epidemiological evidence, the workshop concluded that a cause-and-effect relationship between 2,4-D and cancer is far from being established. The results of two studies conducted by the same research team suggest an association between the occupational use of 2,4-D and non-Hodgkin's lymphoma. However, the workshop participants felt this association needs to be interpreted cautiously, first, because other studies have not shown the same results and second, because some factor other that 2,4-D might be involved. Additional epidemiological studies already underway in the United States, Canada, New Zealand and Sweden will address this question.

Based on all available evidence, the panelists were asked to assess how likely it is that exposure to 2,4-D is capable of causing cancer in people. None of the panelists felt that the evidence was strong enough to conclude that 2,4-D is either a known or probable cause of cancer. Of the 13 panelists, 11 felt it is possible that exposure to 2,4-D can cause cancer in humans, though not all of them felt the possibility was equally likely: one thought the possibility was relatively strong,

leaning toward probable; and five thought the possibility was relatively remote, leaning toward unlikely. A minority of two participants felt it was unlikely that 2,4-D can cause cancer in people. Several members felt that the evidence was barely adequate to support any conclusion. (The panel stressed that it used the terms "probable" and "possible" in their ordinary sense and not as reference to specific carcinogen classification categories used by any regulatory agency.)

As a means of resolving these issues, workshop participants stressed the need for future studies to develop more reliable and precise estimates of 2,4-D exposure and to distinguish more clearly between 2,4-D and other agents in the collection and analysis of data and the reporting of results.

In closing, I would like to recognize the distinguished panel of workshop participants and project staff for their thorough, expert evaluation of the complex body of scientific literature on this widely-used product.

Yours sincerely,

John D. Graham

John D. Graham, Ph.D.
Director
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Mr. KELTY. Senator, I'd like to make another point. Our company is kind of perplexed on the scrutiny brought on these products.

Senator REID. Pardon me?

Mr. KELTY. We are fairly perplexed by the scrutiny that is being brought to bear on these products. We've been in the market for a long time. We think we have a fairly effective mechanism to communicate with our consumers. We have a toll free hotline and we get a couple hundred thousand calls a year. Since 1972 when we instituted this hotline, we have contacted well over a million consumers. We are not getting the feedback that our products are causing any toxicological or environmental problems. In fact, a lot of literature coming out is supporting that.

Senator REID. But Mr. Kelty, you have to acknowledge that these products are used to kill things, insects, whatever else they come in contact with. For example, this product of yours, why is it made in liquid? In granular form, wouldn't it be less apt to be absorbed through the skin? We know this stuff goes through the skin and we have all kinds of reports on that. Wouldn't this, if it was in granular, be less apt to go through the skin of a child, for example, that's playing on the area where they are trying to get rid of the weeds?

Mr. KELTY. Senator, most of our products are granular. This one is an exception. The dermal absorption of 2,4-D, as I understand it, is quite low, on the order of about 5 or 6 percent of that which would be contacted.

Senator REID. They conducted an autopsy on Mr. Prior's body and the conclusions they came to is that he died as a result of exposure to these chemicals that were placed on this golf course. Do you have anything to controvert that?

Mr. KELTY. Senator, not being a toxicologist, I don't know the detailed case of Mr. Prior.

Senator REID. The committee hopes you're right. That would be great, then we could have all these nice lawns and not worry about them, but this is a fact-finding body and we would certainly like to see the report from the Harvard people[1] and any other information that you have, because we are searching for the truth.

We appreciate the information that you have given us. You've been cooperative in that regard for which we are grateful.

You've indicated in your written testimony and just a minute ago that you've received over a million telephone calls from your free hotline since 1972. How many of these calls were to report adverse health effects?

Mr. KELTY. Typically they run a fraction of a percent.

Senator REID. Less than 1 percent?

Mr. KELTY. 0.04, 0.05 percent.

Senator REID. Do you have assimilated somewhere these calls that come to report adverse health effects?

Mr. KELTY. Yes.

Senator REID. You would submit those to the committee?

Mr. KELTY. I will submit that to the staff, yes.

[The information requested follows:]

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[1] Mr. Kelty has supplied the report referred to which is being retained in the committee files.

THE O. M. SCOTT & SONS COMPANY
CONSUMER SERVICE CONTRACTS 1972-1989

Safety and environmental issues, while they are very important to some consumers, do not appear to be a major issue with the consumers who use Scotts products on their home lawns. We have had contact during this 18 year period with 3,251,445 consumers who use Scotts products on their lawns.

1,449,289 of these contacts were on our toll free Hotline

1,802,156 contacts were handled by mail

	1987	1988	1989
HOTLINE CALLS:			
advice	72,915	79,225	100,483
complaints	5,378	5,712	4,605
TOTAL	78,293	84,937	105,088
MAIL CONTACTS:			
TOTAL	30,495	37,106	32,865
TOTAL CONSUMER CONTACTS	108,788	122,043	137,953
TOTAL SAFETY CONTACTS	378	434	355
Inquiries only	321	375	264
Alleged reactions 1/	57	59	91
Reportable incidents			1 2/
Safety Contacts as % total contacts	0.35%	0.36%	0.26%
Safety Inquiries as % total contacts	0.30%	0.31%	0.18%
Alleged reactions as % total contacts	0.05%	0.05%	0.07%
Alleged reactions as % unit sales (approx.)	0.0005%	0.0005%	0.0007%

1/ Many of these, upon investigation, turn out not to have been product related. Most involve skin irritation.

2/ Under FIFRA 6(a)(2) Scott filed with the EPA one human incident report involving a consumer who applied two pesticides, grass seed and fertilizer by hand contrary to the package instructions and who, afterwards, experienced brief numbness of her right arm.

Senator REID. You export many of your products, is that right?

Mr. KELTY. We do some export business, that's right, Senator.

Senator REID. Do other countries have more stringent labeling requirements than we do?

Mr. KELTY. I believe there are some that do have more stringent labeling requirements, yes.

Senator REID. Mr. Taylor, would you relate to the committee your personal experience with the Environmental Protection Agency where you tried to make known to the public that you felt your product was safer, that is the fatty acids. I think that's what you use.

Mr. TAYLOR. That's correct, Mr. Chairman. We've been trying to work with the EPA over the last 6 months. We are currently in negotiation with a potential fine that we face for stating certain things about our product that are in fact true but are not allowed within EPA regulations.

Senator REID. There is no claim that any advertisement you made is false?

Mr. TAYLOR. No, Mr. Chairman. That is cited by the EPA also.

Senator REID. In fact, what were the claims that you made of your product?

Mr. TAYLOR. Biodegradable, natural, I believe biodegrades within 48-hours.

Senator REID. Is that true?

Mr. TAYLOR. Yes, it is. Everything that we claim can be documented.

Senator REID. What do these products do?

Mr. TAYLOR. Our products are biodegradable and kill on contact. The difference between our product and conventional pesticides is that our products kill on contact which is a very different concept than the products that are conventionally sold which don't kill immediately but have residual effects. They could go on for 2 weeks, 2 years, I can't tell you exactly.

Senator REID. Before the insect dies, you mean, before the weeds die?

Mr. TAYLOR. Insects do not die immediately from conventional pesticides. Products such as ours kill on contact.

Senator REID. Why?

Mr. TAYLOR. Our product is a fatty acid that is derived from animals and plants and it just permeates harmful insects or bad insects and just destroys their cells. It doesn't cause any poisoning or anything like the more traditional pesticides.

Senator REID. What if you dumped a bottle of this on a kid?

Mr. TAYLOR. I've been told that a person could drink a bottle of this and the worse thing that would happen is they'd get a bad case of diarrhea. I might add too, Mr. Chairman, that we are trying to work with the EPA and I think the EPA does want to work with us. By the way, they have cited in the Federal Register of January 13, 1982 which I have in my written testimony, that our products are found in "commonly eaten oily foods such as corn and peanuts and are considered non-toxic to humans." So they openly agree that the products are non-toxic to humans.

Senator REID. We may have additional questions to submit to both of you in writing. Both of you receive the thanks of the committee.

The next panel of witnesses will be Mr. F. Eugene Hester, Associate Director, Natural Resources, National Park Service; Mr. William Roberts, Chairman, Government Relations, Golf Course Superintendents Association of Grosse Pointe Woods, Michigan; Mr. Tom Delaney, Director, State Governmental Affairs, Professional Lawn Care Association of America, Marietta, Georgia; and Dr. James Wilkinson, Executive Director, Pesticide Public Policy Foundation, North Kingston, Rhode Island.

Mr. Delaney, do you want to make a bet on the game Saturday night or do you even know if there is a game? Georgia Tech is playing UNLV.

Mr. DELANEY. Unfortunately I happen to be a Georgia Bulldog fan and don't root for Georgia Tech.

Senator REID. I see. Senator Bryant and I offered to wager with Senators Fowler and Nunn and we are going to offer to give them some famous Nevada homemade chocolate made by Mr. Forest Marrs in exchange for either some peaches or peanuts, whatever they recommend. We bet DeConcini last year with Arizona and we won then too, so we will see what happens.

Mr. DELANEY. I wish you luck and hope you do win.

Senator REID. The first witness will be Mr. Hester.

STATEMENT OF F. EUGENE HESTER, ASSOCIATE DIRECTOR FOR NATURAL RESOURCES, NATIONAL PARK SERVICE

Mr. HESTER. Mr. Chairman, it is a pleasure to appear before this committee today to discuss the National Park Service's integrated pest management program and how this program has reduced use of pesticides on National Park System lands. I will shorten my remarks as you have requested.

Federal policy concerning the regulation of pesticides has existed since 1910 through various statutes. The most comprehensive of these statutes is the Federal Insecticide, Fungicide and Rodenticide Act of 1947, with amendments. The provisions of this Act, which most directly apply to the National Park Service, are those which restrict the use of pesticides and concern the certification of pesticide applicators. In addition, other Federal statutes govern the use or disposal of pesticides.

In 1979, the Washington office of the National Park Service in concert with our National Capital Region, and with the EPA, jointly initiated an integrated pest management demonstration project in several of our parks here in the National Capital Region. The purpose of this project was to test the feasibility of implementing integrated pest management, IPM, on a servicewide basis.

In 1980, based on the results of this project, the Service adopted a policy of integrated pest management approach to pest management.

The objectives of the National Park Service program are to provide effective pest management using IPM techniques transfer while reducing pesticide impacts to Park natural and cultural resources; maintain awareness of changes in regulations and policies

of other agencies which may have a bearing on our program; develop service policies which reflect statutory changes; rapidly assess servicewide use of pesticides; maintain awareness of developments in non-chemical and chemical pest management technology and rapidly transmit these to the field and to provide needed training.

The Park Service has made significant advances toward these goals since 1980. Some of these accomplishments include: the National Park Service now has staff in Washington, regions and in the parks to carry out this program; we have developed specific policy statements and incorporated them into our management policies; we have developed a 40-hour training course for our employees on integrated pest management principles as well as specialized courses for certain pests; the development of an extensive IPM information manual which provides non-chemical pest management information about the 45 most frequently encountered pest management problems in the Service; developed a series of training video tapes on different aspects of pest management—I might add these have been made available to other agencies and to the general public—identified pesticides and pesticide use patterns which could affect park resources and altered our use of these materials by finding non-chemical approaches or a suitable chemical alternative.

For example, we have been able to substitute oils and boric acid for scales and cockroaches respectively as replacements for more toxic compounds.

We've reduced reliance on scheduled contract pest management treatments substituting instead monitoring of pest population levels, establishment of action thresholds, and the use of non-chemical approaches. If these techniques fail, chemicals may be used on an as-needed basis.

We have reduced the amount of active ingredients of pesticides used on a servicewide basis from approximately 32,000 pounds in 1983 to approximately 25,000 pounds in 1986, the last year for which we have complete data analysis.

We recently developed draft guidelines for the use of herbicides on turf areas within the National Park System. These guidelines are currently being tested here in the National Capital Region for suitability and adequacy.

Mr. Chairman, this summarizes my comments. I will be pleased to answer any questions you may have.

Senator REID. Thank you, Mr. Hester, very much for your testimony here today.

Mr. Roberts.

STATEMENT OF WILLIAM ROBERTS, CHAIRMAN, GOVERNMENT RELATIONS, GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA

Mr. ROBERTS. Mr. Chairman, Senator Lieberman, my name is William Roberts. I am a certified golf course superintendent at the Lochmoor Club located just outside of Detroit and I am here today in my capacity as Secretary-Treasurer of the Golf Course Superintendents Association of America.

The Golf Course Superintendents Association of America is the only international organization that defines and supports the golf course superintendents' profession. Founded in 1926, we have nearly 10,000 members representing all 50 States in the Union. We have members in more than 60 percent of America's public, private, semi-private, municipal and Government golf courses. GCSAA members provide outstanding playing conditions for some 23.5 million golfers who play approximately 500 million rounds each year. Virtually every golf course with a GCSAA member has one or more licensed pesticide applicator.

Today I'd like to address three specific areas: first, education; then pesticide packaging and finally, research. I trust my comments will be viewed as a representation of those thoughts unique to those who manage golf courses. Although this committee will receive comments from other groups that represent a number of different turf grass perspectives, GCSAA's membership is totally confined within the golf industry and is not represented by any national pesticide user coalitions.

I might add that we view these pesticide materials as management tools and we have no vested interest in the sale, production or marketing of these materials. Our income is not directly proportionate to the amount of pesticide used. They represent an expense to our operation and therefore, we have a vested interest in reducing these inputs.

GCSAA sponsors numerous activities in order to provide continuing education for golf course superintendents including the judicious, responsible use of pesticides and fertilizers. GCSAA sponsors some 80 one and two day regional seminars that draw thousands of attendees each year. These focus on such topics as disease and insect identification, environmental considerations in golf course management, employee and community right-to-know and integrated turf management. They have been offered for the past decade. Forums addressing groundwater monitoring and the protection of water quality will be offered in the coming year.

These educational opportunities we feel provide our membership with the tools necessary to understand and safeguard our environment, particularly when viewed with the knowledge that 97 percent of golf courses with a GCSAA member has one or more licensed pesticide applicator who are well versed in the proper use of appropriate protective equipment.

Our training information provided under the mandates of OSHA's hazard communication standards and also our support for posting communication legislation reaffirms our belief in the overall value of that education in the view that with responsibility comes the need for real qualification.

We have taken a strong position on the promotion of integrated turf grass and ornamental management not only through our own educational communication programs but also by working with the Environmental Protection Agency. As one example, I would point out we are undertaking the cost of reprinting EPA's turf IPM book for use nationwide. Apparently budget limitations have precluded the Federal expenditure to reproduce and distribute this manual by the agency.

The point, with all due respect, is that GCSAA is committed to this approach and would like to take this opportunity to urge this committee's support for greater funds for integrated turf ornamental management within EPA.

We also support a growing certification program for superintendents that stands as an example to the rest of the industry. Implemented in 1973, more than 1,100 golf course superintendents are currently certified. In order to achieve this level of professional recognition, one must meet stringent educational requirements, complete a 6-hour examination, and subject his or her golf course to a formal review by a team of certified peers. Further, to remain certified, a golf course superintendent must prove participation in a minimum of 150 hours of continuing education every 5 years or 30 hours per year.

By 1991, EPA under FIFRA section 19(g) must develop ways to encourage or require the return, refill and reuse of pesticide containers. EPA must also encourage or require development in the use of pesticide containers that facilitate the removal of residues from those containers.

I've served on EPA's Pesticide Packaging Committee that's addressing the mandates of FIFRA 19(g). I'd like to share several comments from my involvement.

While we remain concerned with the safe management of the 223 million pesticide containers generated nationwide each year, of which more than half are generated by the homeowner market where virtually no education or training has occurred, we are also concerned with our members, their players and the public and the need for safer handling of these materials. In my opinion, our concerns exceed existing laws as we continue and encourage industry to focus on safer packaging. We have worked with industry to insure the movement toward better and fewer containers is implemented. Our express needs for more water soluble packaging which means less material to handle and for many bulk containers, which reduces the number of times we handle these materials, are being implemented by some in the industry.

Further, industry, driven in part by our stated needs and buying habits, continue to look for ways to formulate pesticide products that are safe to handle. GCSAA will continue to work with industry, with Congress, with EPA and other groups and would urge Congress to continue to encourage problem-solving groups like that of the Packaging Committee.

Finally, I'd like to address the issue of research. With our strong education research perspective, we believe the answers to the environmental challenges facing not only golf but our entire planet lie in developing alternatives and implementing those alternatives through education.

GCSAA in concert with the United States Golf Association is committed to research. We want to do what's right for the environment and to that end, we direct our research not around the preservation of current practices, but around preservation of our environment.

Our most recent research is an excellent example of this. Responding to concerns about pesticides and groundwater, GCSAA funded an independent study of the effect of turf chemicals on

groundwater. The results of the 2-year study conducted on the sandy, worse case soils of Cape Cod, Massachusetts revealed the following.

First, of the 17 turf chemicals applied to tees, greens and fairways on four different courses, seven were never detected in groundwater.

Senator REID. Mr. Roberts, we are going to have to ask you finish your statement.

Mr. ROBERTS. Almost done, sir. Second, none of the other 10 detected materials were detected at toxicologically significant concentrations and thirdly, lower nitrate concentrations resulted when improved management practices were implemented.

Through the USGA, GCSAA Turf Research Committee will look to fund solid, directed research in a number of different areas without prejudice. Specifically, we seek to develop more educational resources, further understanding of effective turf pest management and fertilization on water quality and the environment and to further evaluate and develop valid alternative methods to pest control.

The goal of our association is to work with legislators and regulators to protect the environment. We will continue to find relevant research, questions and to seek real answers through thoughtful, focused, scientific inquiry.

We do not intend to deal in the emotions of the moment. We will spend our dollars on research and education. We will not spend our dollars in the courtroom challenging the regulatory process. We believe education, participation and research will help us to continue to provide and protect those very special ecosystems we so proudly call our golf courses.

Thank you.

Senator REID. Mr. Delaney.

STATEMENT OF THOMAS J. DELANEY, DIRECTOR, STATE GOVERNMENT AFFAIRS, PROFESSIONAL LAWN CARE ASSOCIATION OF AMERICA

Mr. DELANEY. Good afternoon, Mr. Chairman and Senator Lieberman. I ask that my full text be submitted for the record and my supplemental information.[1] I will give a brief summary.

Senator REID. That will be the order.

Mr. DELANEY. My name is Thomas J. Delaney and I am Director of State Government Affairs for the Professional Lawn Care Association of America. I am here to share with you information about our industry and to establish the necessary role of professional lawn care services.

Scientists have long recognized and advocated the environmental importance of lawns. When properly maintained, lawns cool our neighborhoods, replenish our oxygen supply, prevent soil erosion, purify water and absorb both chemical and noise pollution. These environmental benefits are often overlooked as we primarily enjoy lawns for their recreational and aesthetic values.

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[1] The supplemental information referred to has been retained in committee files.

We are called upon by our customers each day to provide a needed service. Most customers of professional lawn care services have tried to maintain their lawns themselves but have given up because of limited time, unsatisfactory results or because they didn't care to read or follow the mixing and application instructions.

The lawn care industry is a service industry. It strives to meet the demands of its customers, providing mowing, maintenance, aeration, seeding, landscaping, irrigation, fertilization and pest control. These services are performed at a reasonable cost by professionals according to established industry standard.

We recognize the negative images that pesticides convey. The lawn care industry welcomes effective alternative products and methods. Integrated pest management (IPM) is one technique used by professional lawn care companies that achieves the desired results for their customers and also reduces the use of pest control products. But IPM cannot totally eliminate pesticide use.

Non-traditional chemicals like soaps and biologicals have not served as satisfactory substitutes so far. Research remains the key to finding ways of reducing the amount of pesticides used. We ask for your support of Federal funding for urban pest control research to help the development of effective biological and nontraditional pest control techniques and to find answers to the problems of pest resistance.

The future demands placed on our industry will require more technically talented employees. Universities and PLCAA provide training opportunities to advance the skills of trainers and employees. But, Federal funding and support of our efforts is vital to encourage private sector participation.

When considering the need for further regulation of the lawn care industry, it is important to understand that it is already a highly regulated industry. FIFRA and each State's own pesticide acts are among the most encompassing. Required monitoring under these Acts show complaints under the category that includes lawn care applications to be low. New York State's own reports also reflect these low figures.

However, we remain concerned whenever claims of adverse affects to an individual or their property are made. Because of this concern, our industry continues to work with States to advance the safeguards believed necessary for the public. Customers and their adjacent neighbors have the right to know about the products lawn care companies use. We also want to better communicate with those of the public who want to know.

Lawn care operators are committed to the safe use of lawn care products and are willing to work with Congress, EPA, the States and the public.

Finally, an area of great concern is pesticide ordinances being sought at the 88,000 governmental units below the State level. Hundreds of different local requirements would be impractical and inhibit our ability to do business. The Professional Lawn Care Association of America believes in, and the Federal courts are substantiating, FIFRA's preemption of local regulation of pesticides. The lawn care industry is proud of the service it provides to its cus-

tomers nationwide. We are dedicated to improving the environment and the quality of life in our communities.

I hope that in sharing this information with you I have conveyed the need for professional lawn care services. Thank you for the opportunity of allowing me to present these important facts about the lawn care industry.

If you are interested about other States that have registries besides the State of Pennsylvania, I can provide that information. Maryland has had one for two years and a few other States have regulations underway to enact them.

Senator REID. Would you submit that list of other States for the record please? It is not in any of the information that you've given us. If you would do that, we'd appreciate it.

Mr. DELANEY. Yes.

[The information referred to follows:]

State run central registry systems have been in place for two years in Pennsylvania and Maryland. Other states soon to have them in effect are Washington, Florida, Iowa, and Connecticut. Central registry legislation in Colorado is pending.

Senator REID. Mr. James F. Wilkinson, Executive Director, Pesticide Public Policy Foundation, you may proceed.

STATEMENT OF JAMES F. WILKINSON, EXECUTIVE DIRECTOR, PESTICIDE PUBLIC POLICY FOUNDATION

Mr. WILKINSON. Mr. Chairman, thank you and good afternoon. My name is James F. Wilkinson. I am the Executive Director of the Pesticide Public Policy Foundation or 3PF. 3PF is a non-profit, national coalition of urban, suburban and industrial pesticide applicators working for the adoption of reasonable pesticide regulations in the lawn care, tree care, pest control, golf course and utility right-of-way industries.

Turf industries provide tremendous benefits to the citizens and the economy of the United States. In addition to the obvious aesthetic benefits of a well-maintained lawn, as you heard, lawns add significantly to property values, have a dramatic cooling effect during the summer months, minimize dust and air pollution, play a large role in minimizing sports injuries on athletic fields and dramatically reduce surface water runoff compared to other urban services such as asphalt.

Turf maintenance is a $25 billion industry in the United States. Some 500,000 people make their living directly from the care and maintenance of the turf. Pesticides are just one of the many tools necessary in the establishment and maintenance of turf. Pesticide use on turf has a long history of not posing unreasonable risks. The professional lawn care industry makes millions of applications annually without incident. Professional lawn care operators must be trained and licensed and they generally use the same products available to any homeowner in the local garden store.

Contrary to what many people believe, the professional lawn care operator does not utilize pesticides each time an application is made. The industry relies upon proper fertilization techniques and customer education to insure proper mowing, watering and aeration to reduce the need for pesticides. The typical lawn care cus-

tomer generally will receive no more than two to three applications containing pesticides each year.

At the same time, the professional lawn care industry has made great strides reducing its reliance upon pesticides. The industry for years has embraced the concept of integrated pest management and using IPM coupled with new application techniques and new products, the industry continues to reduce its reliance on pesticides.

Concerns over the use of pesticides on turfgrass leading to severe restrictions on their use are not warranted. However, the risks posed by lawn care chemicals sometimes have been questioned and many agencies, especially at the State level, are already moving to further regulate pesticides to varying degrees. 3PF recognizes the need for continued and strong regulation of pesticides and professional applicators, but some of the currently proposed regulation at the State level is unnecessary.

3PF is convinced that if handled according to label directions and used judiciously, the risk posed by lawn chemicals is minimal. In response to many of the regulatory initiatives at the State level, the professional pesticide user industry has already become active in the dissemination of safety information regarding the products used, as well as become active in the legislative and regulatory process itself to develop reasonable regulations to address the public's concern.

A primary example of industry's involvement in response to the concerns of the public over the safety of lawn products is the cooperation of numerous State and national associations with State regulatory officials in the development of posting and pre-notification regulations.

In most cases, and specifically in the case of Connecticut, there has been excellent cooperation between regulatory officials, industry representatives and environmental groups to adopt regulations to satisfy the public's concerns.

Senator REID. That was all started by the former Attorney General of Connecticut.

Mr. WILKINSON. As a result, posting and pre-notification requirements exist today in some 12 States and industry is closely working with regulatory officials in a number of additional States which will probably adopt similar regulations in 1990.

Lawn care operators in these States must post a sign at the time of application, and pre-notify customers and neighbors upon request before applications are made. Four States have now taken the notification a step further and established a central registry of individuals wanting to be notified of pesticide applications. These registered individuals receive prior notice of pesticide applications in their immediate neighborhoods by professional applicators. This system of central registries is working well providing concerned citizens with notification of pesticide application.

The turfgrass industry, from professional applicators to golf courses and do-it-yourself homeowners continues to grow at a rapid pace. Americans are placing increased value on their homes and landscapes. While pest control products used in the home environment must be carefully selected and regulated, the professional pesticide applicator industry is responding to the right to know

concerns over lawn care chemicals through workable systems of pre-notification and posting.

Mr. Chairman, if I may, I'd like to conclude with a very short rebuttal to some of the testimony presented earlier regarding the fungicide daconil and the death of Navy Lieutenant Prior.

The death of the Navy Lieutenant spawned a lawsuit by his widow against the manufacturer of the product, daconil, and on May 9, 1988, the court moved to enter a judgment on behalf of the defendants, in this case being the manufacturer of the product.

Senator REID. Was that a jury trial?

Mr. WILKINSON. I can't answer that question. I simply don't know.

I would like to very briefly read from a statement that was released by the company after the trial. It reads as follows:

> Listed below are the facts concerning the 1982 death of Navy Lieutenant George Prior. On May 9, 1988, the trial court in the case entered judgment in favor of the defendant. These facts are: Navy Lieutenant Prior died from toxic epidermal necrosis, TEN, which was caused by viral infection.
>
> A review of all medical writing regarding TEN confirmed that daconil has never been associated with the disease. Daconil has been used on golf course turf for more than 18 years with over three billion rounds of golf being played without any reported incidents of TEN.
>
> Summary conclusion: Extensive evidence developed for this case, including product usage information, for more than 18 years clearly demonstrated that daconil fungicide did not cause TEN that resulted in Lieutenant Prior's death.

Senator REID. We have a vote pending. Senator Lieberman, perhaps we should go vote then come back. If we could again impose on you, to wait, we will try to be back within 10 minutes.

This committee stands in recess.

[Recess.]

Senator REID. The committee will come to order. We appreciate again everyone's patience.

Mr. Wilkinson, I'd first like to address my comments to you. There are a number of things that make me feel a little ill at ease around here but one thing I don't feel ill at ease about is matters that relate to court proceedings because I earned my living for many years as a trial lawyer. You've tried to mislead the committee and I am personally offended and I think anyone that has any knowledge of what's going on should be.

I have been very impressed, for example, with Mr. Roberts, who represents people who have concerns about lawns and he basically said, I'm not taking a side in this fight, I think there should be more research that goes on and we are willing to abide by whatever comes out of it.

You have tried to tell me—and I don't know how the rest of the committee feels about it—that this case was determined adversely against Mr. Prior's heirs. That's absolutely untrue. The case was settled out of court and the court, pursuant to law entered a judgment. That is a case that was settled out of court.

In addition to that, because of the unusual nature of the proceeding, it is my understanding that the court entered a gag order that basically said people couldn't talk about the proceedings in that case.

You can go around and give speeches to service clubs about this case being settled against Mr. Prior's heirs, but don't do it with me because you are misleading this committee.

I had planned saying this before I heard Mr. Wilkinson try to mislead the committee. I am impressed with the tenor of your statement. As I indicated here earlier, I hope the testimony we heard from Dr. Kelty is true, that these things don't hurt people. I hope that is true, and the committee hopes that. All we are trying to do is gather information.

The claims made by Mr. Prior's brother, by the little boy, and the woman, I don't know. We aren't the trier of fact and I don't know if in fact they are true or either do you, and that is what you have told us in your testimony, isn't it?

Mr. ROBERTS. That's correct, sir.

Senator REID. You have a concern because you work out on the lawns with these products, is that not true?

Mr. ROBERTS. That's true. I spend more time on the golf course than any member of my club membership or the general public would on a day-to-day basis.

Senator REID. If I had to summarize your statement and your testimony, it would be basically as I said before, you don't have a dog in this fight, and you're just trying to find out, as we are, what is valid and invalid about the claims and hopefully the Government has a role to help you in that regard, is that right?

Mr. ROBERTS. That's essentially true. We have no agenda here. Our concerns deal with the health and safety of the public, the golfers, and ultimately with the environment that we live in because obviously that impacts that health and safety. We are willing, frankly, to put our money where our mouths are. We are going to do this research. We are going into this research with no preconceptions and if we find out that the materials or management practices are scientifically valid, we'll continue to use those. If we find out that those materials or management practices could adversely affect the environment or the public, we're determined to find solutions or alternatives so that we can continue to maintain good golf courses and yet not impact the public.

Senator REID. Mr. Hester, to make our record complete, would you tell us what kind of a doctor you are?

Mr. HESTER. Doctor of Philosophy.

Senator REID. Mr. Wilkinson, what is your professional and educational experience.

Mr. WILKINSON. I am an agronomist.

Senator REID. Mr. Delaney, how extensive is the use of lawn pesticides by your members? Do you keep figures of that?

Mr. DELANEY. No, I'm sorry, I don't have any figures. We can try and get some for you but I don't know if they are available.

Senator REID. There has been some testimony here today that there should be, after somebody sprays a lawn with chemicals, a notice posted that that has happened. How do you feel about that?

Mr. DELANEY. We, as an association, have worked on some guidance for the industry and are working with some of the States that have felt it was necessary to have posting requirements, so we have supported those States and worked with them vigorously in estab-

lishing posting requirements and notification requirements. Thus we have been in support of posting.

Senator REID. Senator Lieberman.

Senator LIEBERMAN. Thank you, Mr. Chairman. I support what you said earlier and I'm glad you said it.

In responding to one other thing that was said, about the positive value of lawns, I love a nice looking lawn but isn't it true, when you talked about the positive value of a lawn environmentally that would be just as true if there were weeds there? In other words, it would still remove the dust, and still put oxygen into the air as you suggested? You don't need a perfect lawn—there is value to a lawn but it doesn't have any more environmental value than a field of weeds, does it?

Mr. DELANEY. A yard of weeds cannot provide all the environmental benefits of a well-maintaind single turf variety. Many weeds do not have the same life cycle as turf and will die and leave bare ground. Turfgrass has the ability to have over 850 plants per square foot to support benefits which most weed varieties cannot. Some weeds, left uncontrolled, will, by their very nature, spread and multiply, thus eliminating the derived benefits of turf.

Senator LIEBERMAN. I guess I'm saying I just thought you were sort of overstressing that point. Even here in your answer you're talking about what happens after the weeds die. I was just thinking of all the pesticides that are applied to make sure the dandelions and other weeds don't grow in our lawns. It seemed to me that if there was a bit of clover there or some weeds, it would have the same positive environmental impact that the lawn would.

As far as I can tell, there's been a general endorsement of the idea of integrated pest management but also as far as I can tell, the only one that's really using it so far extensively is the National Park Service from what I heard. Maybe you just answered it in response to Senator Reid's question but I'd be interested, if you can, to indicate to us afterward in writing based on the best of your knowledge and surveying your membership, how much they are using alternatives to pesticide in their work. Can you offer anymore at this point?

[Mr. Delaney supplied the following:]

While I cannot provide the number of our members or others in the industry who are using Integrated Pest Management (IPM), we feel most are utilizing it for the mere fact it can save them money. The attached information regarding IPM will help you understand why the number of companies utilizing IPM is difficult to quantify.

Professional Lawn Care Association of America

INTEGRATED PEST MANAGEMENT FOR LAWNS

Discussion of the Issue

Integrated Pest Management is turfgrass management that requires inputs in five basic management areas: (1) fertilization, (2) irrigation, (3) mowing and cultural, (4) cultivar selection, and (5) pest control. Inputs in any one of the five areas act to reduce or create needs in the other four areas. For example, fertilization may reduce pest problems, while increasing the need for irrigation and mowing; or proper cultivar selection can reduce pest problems, fertility and irrigation needs while having little or no effect on mowing requirement.

Integrated pest management (IPM) balances all five management practices to minimize not eliminate the need for traditional pesticides. IPM is most successful when implemented by managers who understand and control the fairly complex interaction among the five management areas and who are able to monitor turf conditions on a regular basis.

The Professional Lawn Care Association of America fully endorses and employs pest management practices that are environmentally responsive as described by the meaningful purpose of IPM.

Certain Regulators and Legislators in their attempt to further protect the health and safety of people, animals and the environment, believe that mandating IPM practices for commercial lawn care companies is an appropriate step to meet their perceived need.

The success of IPM practices depends on a expert knowledge of all factors that effect the healthy growing environment for turfgrasses. The lawn care professional typically has the necessary knowledge and experience to properly employ IPM techniques. The layman however does not typically have the expertise and resources to employ IPM concepts. Since the "do-it-yourselfer" utilizes a far greater level of pesticides than the lawn care professional, mandating IPM technique will not realize the perceived benefit of pesticide use reduction.

Enforcement of mandated IPM practices would be extremely difficult, given the many complex factors that effect the healthy growing environment for lawn grasses. Certainly the enforcement of the "do-it-yourselfer" is impossible.

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Recommended Good Practice:

1. The Professional Lawn Care Association of America fully supports the concept of integrated pest management for lawn care. From the professional view point, this approach includes not only the timely and judicious use of fertilizer, pest control chemicals by trained employees, but also a program to educate property owners in proper mowing, irrigation and turfgrass selection.

2. PLCAA supports and encourages federal, state, and private level initiatives that endorse and finance research that will further promote lawn care in an environmentally responsive manner consistent with IPM principles. These initiatives include development of biological pest control technology, improvement of turfgrass cultivars, expansion of service offerings, innovation in customer and employee education and improvements in application technology.

3. Since most property owners are uneducated in IPM, the use of professional services such as those provided by PLCAA member companies optimizes the use of sound IPM principles.

Mr. DELANEY. Integrated pest management is something a lot of the members have been doing for several years. Some of the statements made by Mr. Feldman are some of the same things that our members are using.

Integrated pest management is a procedure which also requires the customer's help and cooperation. Mowing heights and proper watering are some examples. It is a complex interaction of elements that customers must share in, or it must be performed by companies that provide all the required services. It can be more labor and , e intensive; therefore, more expensive.

Senator LIEBERMAN. Maybe I should ask it this way in general terms, which is, would you say that the total use of land pesticides is going up or going down?

Mr. DELANEY. Probably going down.

Senator LIEBERMAN. Really? I'm surprised at that. In spite of the increase in the business that's being done by the lawn care companies?

Mr. DELANEY. Many companies have gone to spot treatments instead of overall treatments, some of the newer pesticides require less to be used per ounces per gallon per acre, so ultimately they are using less pesticides than they did several years ago.

Senator LIEBERMAN. I hope you are right and again, I'd be interested if you have statistics on that. That is probably going to be easier for you to get than those usage numbers than the IPM numbers.

Senator REID. If the Senator would yield, I think one reason the amount is going up is there are more people having their lawns professionally cared for. Wouldn't that be the case?

Senator LIEBERMAN. That's what I thought. That is why I was surprised when you said the total usage was actually going down.

Senator REID. The use per lawn is going down but not the overall use because more people are using it.

Mr. DELANEY. Right. Excuse me, that would be more correct.

Senator LIEBERMAN. This is why he was such a successful trial lawyer, he was good at cross-examination.

Mr. Roberts, how would you feel about a law that required either yourself, your employees, or a professional lawn care service that sprayed your golf course to post a notice before and afterward of the spraying?

Mr. ROBERTS. In my own situation, I already do that.

Senator LIEBERMAN. You do?

Mr. ROBERTS. Yes.

Senator LIEBERMAN. Tell me about how you do it?

Mr. ROBERTS. It takes a couple of different avenues. Obviously I want to have my people informed, my staff informed, not only the person making the application but everybody else in our employ working on the golf course that this is going to go on such and such a day, such and such an area with such and such a material on such and such parameters.

Beyond that, we extend that to everybody that plays our golf course by posting a notice explaining again, the reason we're making the application, conditions under which that application is being made, what the material itself is, when we anticipate the material or the application to be finished, and we try to communicate

that as best we can, not only through posting but through conversation, through some internal communication vehicles we have at the club and it seems to work well.

As an industry, I would say that we feel we have a responsibility to communicate that information to people that play our golf courses and we have in fact in the past at the State level helped to develop some of that legislation, so we are in favor of it.

Senator LIEBERMAN. Good for you. Thank you for that answer.

Mr. Delaney, let me just ask you from the best of your knowledge about the folks who are actually applying the pesticides who work for lawn care companies. It's my understanding that in most States, there is not a requirement that actual applicators be certified or licensed, but only that their supervisors be certified or licensed. Is that correct, to the best of your knowledge?

Mr. DELANEY. That's correct in some States, but in many other States like Georgia, many of those people have become licensed, even though they haven't been required to do so. But your statement is true.

Senator LIEBERMAN. In many States, all that is required is that the supervisor be essentially a phone call away, is that correct?

Mr. DELANEY. Yes.

Senator LIEBERMAN. Do you think that's adequate protection or would you favor a system more like Georgia, maybe not like Georgia but that would require the applicators to be certified and trained?

Mr. DELANEY. We support programs like in the State of Indiana, that requires technicians to be properly trained and licensed at some degree, lower than that of the certified applicator. We, as an association, have many training programs and we provide educational opportunities for technicians. We feel any new amendments to FIFRA should include additional certification requirements for technicians for several of the categories of pest control use.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Senator REID. I have one additional question for the panel. Anyone can answer this who feels he's capable.

My wife recently asked a lawn care company or two, actually two, if they could do our lawn with non-chemical applications and they said yes, but it would cost about four times as much. I don't know if they didn't want to do it. How do you respond to that?

Mr. DELANEY. I think basically some of those processes are more labor-intensive and have more management involvement.

Senator REID. Somebody testified to that earlier today.

Mr. DELANEY. Scouting lawns for weeds and insects are some examples. Some companies are working with EPA on integrated pest management programs, which will require more management and less use of pesticides. Total organic services do not always totally eliminate pesticide use. Some of them use pre-emergence herbicides, and some programs only eliminate the insecticide applications. So, I do not know if there are any successful companies providing totally pesticide free services.

Senator REID. I am sure if they took that literally, no chemicals to be used, that would apply to no chemical fertilizers. I am sure that could create a problem because a lot of the things that compa-

nies apply to your lawn aren't pesticides, they are other types of things, isn't that right?

When we see them out there spraying stuff, we think it's all things to kill bugs, but that's not necessarily the case?

Mr. DELANEY. Many of the applications are only fertilizer applications.

Mr. ROBERTS. This is a copy of the Integrated Pest Management for Turf Grass and Ornamentals that was developed by Dr. Ann Leslie, EPA's Turf IPM Project Leader. This is the book that we are going to reproduce and distribute.

Senator REID. At your own cost?

Mr. ROBERTS. At our own cost, and I'd like to enter this in the record if you deem that appropriate.[1]

Senator REID. That will be the order.

Thank you very much, gentlemen.

The final panel today will consist of Mr. Jay Vroom, President, National Agricultural Chemicals Association; Dr. Roger Yeary, Vice President, Health and Safety, Chemlawn Services Corporation on behalf of Chemical Specialties Manufacturers Association; Mr. Warren Stickle, Chemical Producers and Distributors Association; and Dr. Michael Gough, Scientific Advisor to the Task Force II on 2,4-D Research Data. Mr. Vroom, would you give your testimony first?

STATEMENT OF JAY VROOM, PRESIDENT, NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION

Mr. VROOM. Thank you, Senator.

Senator Reid. We do appreciate your patience. It's been a very long day. There's not much we can do other than say thanks. We would have been through hours ago had we been able to.

Mr. VROOM. We appreciate your hanging in here also and in the image of the Running Rebels, I'll go into fast forward with my oral statement.

Our interest in commenting today on lawn care chemicals is clear. The basic research, testing, registration, reregistration, and prescribed uses for these products all follow the same general guidelines and experience established for agricultural chemicals. In fact, roughly 80 percent of all the products used for non-agricultural purposes were originally registered and most are still used for agricultural uses.

Today, I'd like to focus on four key questions which are frequently raised about lawn care chemicals. First, are lawn care chemicals adequately tested to insure safety and effectiveness? Mr. Chairman, members of the committee, the research and review process established for pesticides today is among the most rigorous systems applied to any product for the consumer market in the United States.

Each year, chemical firms spend hundreds of millions of dollars to research and test new products, rejecting many, oftentimes only one out of every 30,000 will leave the research bench before they even depart the laboratory. Why? Because they do not meet the

[1] The book referred to his been retained in committee files

manufacturers' own guidelines for environmental protection, human safety and efficacy.

Once those criteria are satisfied with research and testing, companies spend an additional $1 to $50 million per product to register those products with EPA. This testing continues throughout the product's life, ongoing reregistration as we have heard. Testing for reregistration is well underway for many pesticides and is expected to cost my industry into the billions of dollars over the next decade.

Clearly the sanctioned use of a pesticide is the result of the most extensive scrutiny and most intensive scientific review, critique and one of the most rigorous regulatory analyses ever devised for a product in the American marketplace.

Question two, are applicators properly trained? Basic manufacturers who supply the pesticides to commercial applicators and lawn care services go to great lengths to provide training and support to insure the safe use of these products. That support takes the form of regular on-site training programs, seminars, extensive educational literature, and audiovisual support, and elaborate instructional video and other kinds of presentations.

Each effort aims at insuring superior skills in the handling and precise timing of application and use of lawn care chemicals. Our industry supports and encourages the training of individuals to become government-certified, licensed applicators. We feel that is an additional extension of the stewardship that we have committed. Where the individual applicator companies do their own training, we provide support in training their trainers.

The third question is, is research underway to improve the safe use of these products? Every day new technologies are being tested and introduced to minimize the chances for user error and eliminate adverse environmental effect.

Some of those concepts and systems include closed containment systems which carry a premeasured, premixed, ready to use chemical formulation requiring no consumer handling; refillable containers that minimize the need for disposable containers and the problems of solid waste that those containers pose; dissolvable packaging and residue free containers; dose packaging in which a premeasured dose of a product is applied for a specific purpose; controlled droplet application which is a new concept for self-contained application devices which reduces product drift in many cases; products which achieve their intended use at extremely low concentrations of active ingredients (that's been discussed here already); improved diagnostics to help better identify lawn care problems and prescribe and on-target treatment eliminating overtreatment or mistreatment; biological controls which are on the cutting edge of the technology development that my industry is very involved in.

A key concern in all these efforts is environmental and human safety.

The final question is, are lawn care chemicals really needed and what are their benefits? We've heard a lot of discussion about that here this afternoon. Consumers prefer healthy, aesthetically-pleasing lawns. There have been a lot of other environmental questions

and benefits that are derived. The issues with regard to the reduction of soil erosion and other runoff are very significant.

Insecticides greatly contribute to human safety by warding off harmful insects such as ticks, fleas, mosquitos, ants and roaches, and in some areas, well kept property or a healthy green lawn free of weeds can actually reduce the incidence of fires.

Strategic lawn care also helps reduce erosion, as we talked about, and contain runoff, and in some places, help eliminate or minimize flood problems. Clearly pest control chemicals are not only wanted by consumers but they are needed. We have a commitment on the part or the manufacturers of these products to continue to deliver newer, safer products and better stewardship components along with the sale of the basic molecules.

I will stop there and wait for your questions.

Senator REID. A very fine statement.

Dr. Yeary.

STATEMENT OF DR. ROGER YEARY, VICE PRESIDENT, HEALTH AND SAFETY, CHEMLAWN SERVICES CORPORATION ON BEHALF OF CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

Dr. YEARY. Mr. Chairman, Senator Lieberman, my name is Roger Yeary, I am Vice President for Health and Safety for the Chemlawn Services Corporation. I am appearing on behalf of the Chemical Specialties Manufacturers Association where I serve on the Executive Board of the Commercial and Residential Services Division.

CSMA has a membership of more than 400 firms engaged in the manufacture, formulation, distribution, and sale of home lawn and garden pesticides and other chemical products.

In preparing this testimony, it was our belief that the subcommittee would be presented with recommendations taken from the Public Citizen report entitled, "Keep Off the Grass," which was released in April 1989. We do not intend to take the time of the committee to present a detailed critique of the report except to state it is unauthoritative, inaccurate and misleading. However, we wish to respond to the six recommendations for Federal action.

Recommendation one, "the EPA should ban the use of lawn care pesticides that are suspected of causing cancer in humans." Our response is the EPA has authority to prohibit or limit uses of pesticides which pose unreasonable, adverse effects on the environment, but this position would go beyond the evaluation of an unreasonable risk and advocates a zero risk threshold for registration.

The EPA and the Food and Drug Administration are entangled in the web of the Delaney Amendment to the Food, Drug and Cosmetic Act which ignored the extrapolation of the results of tests on laboratory animals for carcinogenesis and the relevance of this data to the risk of human cancer.

The issue of cancer risk from lawn care chemicals is not different from the cancer risk for other chemicals in terms of the principles of risk assessment. It is clearly within the present authority of the EPA to cancel or suspend the registration of any chemical which presents an unreasonable risk.

We support the agency and legislative efforts to more succinctly define unreasonable adverse effects in terms of negligible risk and regulating chemicals that are carcinogenic in tests and laboratory animals, recognizing that zero risk is scientifically and practically untenable.

Recommendation two, "Congress should require lawn care companies to provide customers with Government information on the known and potential effects of lawn care pesticides." Firstly, this recommendation is an attempt to stigmatize lawn care services by singling out this industry from all other businesses that use chemicals in providing services to customers.

Secondly, the intent is to imply that lawn care services present a special or unusual hazard. This certainly is incorrect and misleading. A requirement that lawn care companies provide customers with "Government information" on pesticides is a labeling issue. The EPA has been examining the effectiveness of pesticide labels and a label improvement program.

It is important that information be simple, clear and concise so it can be comprehended by the user. It is unrealistic to expect consumers to make complex risk assessments from information on product labels or in other information. It is for this reason that agencies such as EPA are the gatekeepers to product availability.

Recommendation three, "Congress should insure that Federal agencies take decisive action against lawn care companies that make false or misleading claims about the safety of their products." In July 1989, the Federal Trade Commission prepared a brochure for consumers entitled, "Lawn Care Contracts," which addressed the lawn care safety issue. One state, as you heard earlier today, has filed claims of false and misleading advertising. The disputed facts are before the court and as of this date have not been adjudicated.

Recommendation four, "The EPA should conduct a comprehensive exposure study for all lawn care chemicals, speed up testing for neurotoxic effects of all pesticides and inert ingredients, and take regulatory action to protect consumers." We support exposure studies for lawn care chemicals. The lawn care industry has exposure data for its workers and logic would presume that its customers and their neighbors have significantly less exposure.

The lawn care industry will cooperate with the EPA in studies of pesticide exposure from the use of lawn chemicals. You have heard earlier today that Chemlawn initiated an epidemiology study of all its employees with the National Cancer Institute to look at the issue of cancer risk in workers.

Recommendation five, "Congress should appropriate additional funds for programs that promote the use of integrated pest management, a system which relies on least toxic methods of pest control." Our response is, we fully support the concepts of integrated pest management. Integrated pest management does not mean that pesticides are not employed in such programs. The lawn care industry strives to improve the quality of neglected lawns and to maintain the quality of well cared for lawns.

In this process, we encourage the use of good cultural practices and fertilization, mowing, and irrigation which reduces the need for chemical control of weeds, insects and diseases.

Recommendation six, "Congress should replace the risk benefit analysis currently used by the EPA with a health-based standard." This recommendation presupposes that there can be a clear distinction between risk assessment and the benefits from use of chemical substances. Surely we have learned by now the paradoxical effects of the Delaney Amendment. Risk assessment is futile unless there is established a reasonable standard of acceptable risk. Certainly one cannot seriously promote an unattainable and virtually immeasurable goal of zero risk.

In conclusion, the recommendations of the Public Citizen's report raises issues that are clearly within the current regulatory authority of the EPA or other regulating agencies. As in the past, CSMA and its membership will work with all agencies through the regulatory process.

Thank you.

Senator REID. Thank you very much.

Mr. Stickle.

STATEMENT OF WARREN E. STICKLE, PRESIDENT, CHEMICAL PRODUCERS AND DISTRIBUTORS ASSOCIATION, ACCOMPANIED BY RON MALL, HOWARD JOHNSON ENTERPRISES, INC.

Mr. STICKLE. Mr. Chairman and Mr. Lieberman, we want to thank you very much for the opportunity to be here today to talk about the issue of lawn care chemicals.

My name is Warren Stickle and I am President of the Chemical Producers and Distributors Association. CPDA is a non-profit, voluntary membership association comprised of about 70 member companies engaged in the manufacture, formulation, distribution and sale of about $3 billion worth of products used on food, feed and fiber crops and for lawn, garden and turf area of which approximately $100 to $200 million is in the lawn care area.

Accompanying me today is Mr. Ron Mall of Howard Johnson's Enterprise, a company located in Milwaukee, Wisconsin. Mr. Mall's company is a formulator of retail and commercial turf fertilizers and pesticides and he would like briefly to talk about the benefits of lawn care chemicals and the testing of lawn care chemicals.

Senator REID. You can use your time any way you chose, Mr. Mall. Please proceed.

Mr. MALL. In the essence of time, I am going to take some comments from context here. I feel that I speak for most of us in the lawn care industry when I say that we are certainly opposed to the indiscriminate use of or overapplication of fertilizers and/or pesticides. Additionally, we believe strongly in training programs so that applicators can properly identify, diagnose and treat weeds, insects or disease. We believe in licensing and certification of all who mix, load and or directly supervise and make the applications.

With regard to any indiscriminate use, believe me, economics today would certainly see to it that neither a lawn care company or a golf course certainly can't afford to dump products, if you will.

We are continually looking for ways to improve our turf grass programs. We encourage soil testing so as not to overapply nor underapply, but rather apply the correct amount. I am talking about whether it be fertilizer and/or pesticides. It is not a guess.

With regard to testing of lawn care chemicals, despite the claims that lawn care chemicals are suspected human carcinogens or cause health hazards, in my opinion, nothing could be further from the truth. Others claim that lawn care products are untested with extensive data gaps, but there are not huge data gaps on most commonly used lawn care products.

Most lawn care pesticides are more fully utilized on food crops. In fact, of the 35 most widely used major lawn care pesticides, 29 are also registered for food or feed uses. As a result, these products must undergo extensive testing including subchronic and chronic toxicity testing at the Federal level and must meet special State registration requirements in California as well.

Most of these products have a long record of common usage with a safety record of no adverse health effects. There should be no cause for public concern about the health effects of lawn care chemicals.

The EPA conducts a thorough evaluation of all lawn care chemicals as a part of the registration and reregistration process. If specific products are found to be acutely toxic, EPA has the suspension and cancellation authority to withdraw products that cause an imminent hazard or they can restrict its use, or require that it be applied under stringent specifications on the label.

The turf grass industry is proactive and is working towards improving our environment. These people pursue quality turf for a variety of reasons and I am going to mention some here that have already been mentioned but one or two that haven't—less erosion; healthy turf does reduce runoff which saves water; plant food nutrients are extended and pesticide application rates can be reduced; healthy turf is cleaner, quieter, cooler, returns oxygen to the air; healthy turf on sports fields and park areas reduces the risk of injury to those who use sand; healthy turf is conducive for backyard play, picnics and other family outings. These activities are a little tough to conduct on asphalt or concrete.

Healthy turf can recover from heavy traffic and use, thereby maintaining its appeal and value. I think this also hits the question to the earlier panel with regard to the field of weeds. Healthy turf encourages wildlife and healthy turf discourages pests.

Thank you, Mr. Chairman.

Senator REID. Dr. Gough, please proceed.

STATEMENT OF DR. MICHAEL GOUGH, SCIENTIFIC ADVISOR, TASK FORCE II ON 2,4-D RESEARCH DATA

Mr. GOUGH. Mr. Chairman and Mr. Lieberman, thank you for inviting me to appear on behalf of the Industry Task Force on 2,4-D Research Data. I was a participant in the workshop convened by the Harvard University School of Public Health on October 17-19, 1989 which discussed possible linkages between exposures to 2,4-D and cancer. I will report on that meeting and its conclusions in my remarks which are condensed from my written statement.

The workshop was sponsored by the National Association of Wheat Growers through a grant to the Industry Task Force on 2,4-D Research Data, a group of six companies sponsoring on-going research about the possible health effects of 2,4-D.

Although industry funds supported the workshop, the workshop convenor, Dr. John D. Graham of Harvard, had a free hand to select and invite workshop participants. The roster of participants which appears on pages 9 and 10 of the report and in the attachment to my written testimony shows that six of the 13 participants have academic affiliations, one was a State employee, two are Federal employees, one an employee of a 2,4-D manufacturer, one formerly a Federal employee, is a consultant, one directs the Canadian Center for Toxicology, and I am employed at Resources for the Future, a non-profit foundation here in Washington. All of the participants are experienced in the epidemiology, toxicology or regulation of the pesticides called phenoxyherbicides which includes 2,4-D.

We reviewed the world's literature as well as some not yet published literature about 2,4-D with the goal of weighing all the evidence to arrive at a conclusion about the possible human carcinogenicity of the herbicide. We concluded that: "Workshop participants were not convinced that a cause/effect relationship between exposure to 2,4-D and human cancer exists."

Why is there a concern about cancer? A National Cancer Institute study in 1986 reported an association between exposures to phenoxyherbicides and non-Hodgkin's lymphoma in Kansas farmers. Because 2,4-D was the phenoxyherbicide most used in Kansas, it was hypothesized that chemical was the cause of the increased risk of NHL. NCI scientists investigated that possibility in a study of NHL in Nebraska farmers.

Contrary to what I would have expected if 2,4-D is responsible for the excess of NHL in Kansas farmers, the risk of NHL in Nebraska farmers exposed to 2,4-D was less than that for Kansas farmers who had been exposed to phenoxyherbicides of all kinds. Moreover, none of the excess risks detected in the Nebraska farmers was statistically significant which simply means that the apparent association between 2,4-D and NHL in that study could have resulted from chance.

The workshop participants reviewed the Kansas and Nebraska studies along with about 10 other studies. None of the other studies reported an association between 2,4-D and NHL or any other cancer.

The workshop participants noted that other epidemiologic studies would be completed in the near future. Such studies will strengthen or weaken the evidence for possible associations, but merely carrying out more studies using techniques that have already been employed will not resolve the inconsistencies that we see. In addition, we need analyses of the methods that have been used in the various studies and evaluations of their strengths and weaknesses.

The Task Force has decided to fund such an analysis that was proposed by Dr. Jack Mandel of the University of Minnesota School of Public Health. When complete, it will shed light on the method and results of studies and improve our ability to interpret the studies already done and yet to be published.

In summary, the workshop participants concluded, in Dr. Graham's words, "that a cause and effect relationship between 2,4-D and cancer is far from being established."

Thank you.

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Senator REID. Mr. Gough, thank you very much. Several panels ago, there was a witness, Mr. Kelty, who talked about this report and he wasn't aware where it came from, and you're the one that brought it to our attention, the one we just talked about?

Mr. GOUGH. Yes.

Senator REID. So that's what Mr. Kelty was talking about.

The work that was done at this workshop, what they were studying was cancer link with 2,4-D?

Mr. GOUGH. That's correct.

Senator REID. As I read the material you supplied, I see there were 13 scientists and they came to different conclusions. The majority said it was possible, none considered it a known or probable cause of cancer, and then the others had varying feelings about it.

Also, I think it is important to note that when they talked about Dr. Zahm, they said they felt that her work needed to be interpreted cautiously because there are no other studies that have shown the same result. I'm not sure that is a good reason. The second reason, I think, would have more bearing, because they say some factor other than 2,4-D might be involved.

I think it is important to note that the report suggests that any risk associated with the herbicide can be reduced if workers wear protective equipment during mixing and application and change clothes right after they use the material.

The point I am trying to make is that I don't think by any stretch of the imagination, based on this one report that took place over a weekend, we can come to a conclusion that it doesn't cause cancer. I think we can come to the conclusion that those panelists couldn't arrive at a conclusion.

Let's assume for purposes of this discussion that we determine that the people who attended this Harvard School of Public Health decided that 2,4-D did not cause cancer. We still have a lot of problems with other types of illness and this committee has heard a spade of evidence on other types of chemical poisoning.

I am certain in my own mind that there is something called chemical poisoning, it makes people sick, some people not as sick as others, but you can get sick. I think that is where the industry should direct a lot of their attention in addition to the problem with cancer.

Mr. GOUGH. May I respond?

Senator REID. Of course.

Mr. GOUGH. As you're well aware, it's impossible for anyone to prove a negative, and scientists never say, "it never can happen." You're quite right, there was a consensus of the group—we were asked the question, do you consider 2,4-D to be a non-probable, possible or unlikely human carcinogen? The consensus was, it's possible and there was a spread around that.

We did consider some acute effects of 2,4-D but I think you are talking about chemicals more in general than just 2,4- D?

Senator REID. I am talking about chemicals in general, but I'm talking about chemicals of which the hearing today has focused on a small number of the 6,500 chemicals that we have out there in our world of chemicals. My point is that there certainly are statements here today that sickness other than cancer is caused by

these chemicals. My point is I think the industry should look at some of these other illnesses other than just cancer.

Mr. GOUGH. I quite agree with that. Our charge was more limited because the concern about 2,4-D is focused.

Senator REID. I understand that. Just to make the record complete, Dr. Yeary, what is your degree in?

Dr. YEARY. My original training was in veterinary medicine. I've spent the last 30 years in toxicology.

Senator REID. Your Ph.D. is in?

Dr. YEARY. Veterinary medicine. I am Board-certified in toxicology.

Senator REID. Dr. Gough.

Mr. GOUGH. I was trained as a molecular biologist.

Senator REID. Mr. Stickle.

Mr. STICKLE. Doctor of Philosophy.

Senator REID. I notice that Mr. Stickle, you and your associate, didn't spend a lot of time on the issue of misleading safety claims on pesticides and the products used on lawns. Tell me what you think of some of the statements the General Accounting Office said that they feel are misleading? I could go over some of those if you'd like?

Mr. STICKLE. Please.

Senator REID. "All of our products are practically non-toxic. No one gets sick." "All of our products are legal and registered at EPA as practically non-toxic." "The only way to be affected by the pesticide would be to lay in it for a few days," and on and on with claims like this.

Mr. STICKLE. If I could, Mr. Chairman, are we talking about label claims or are we talking about conversations between——

Senator REID. Both. The General Accounting Office got these from literature that was sent to them and they got it by calling lawn care companies and asking questions. This is what they were told.

Mr. STICKLE. Let's start with the label requirements. EPA requires a series of label requirements, they review them, they get sent back and forth from various companies to the agency to review them, they make corrections, they make some insistence that instructions are changed, that clarifications need to be made. I am not saying we live in a perfect world, but there is an extensive review process of the label at EPA. In fact, the agency also has a label improvement program that they are constantly trying to update and go through on the labels.

I think there is a conscious effort on the part of companies as well as the agency to come up with the best possible situation as far as explaining the product use on the label. That doesn't mean that the label cannot be improved or the label cannot be simplified, that it could not be shortened, and that it could not be clearer to a person who is either a consumer or a user as far as that is concerned.

I think there is room for improvement in that and I am trying to suggest that the agency and companies that work on that are trying to do that.

Senator REID. If I could relate this to the panel, I think the procedure that we have with the EPA as it relates to chemicals is

wrong. With the Food and Drug Administration, if you have a drug, you're a drug manufacturer and you want to sell a drug to the consuming public, then it's up to you, the drug manufacturer to prove that produce is safe. I think we should do that with these chemicals that the EPA is asked to examine.

The way it is now, the burden is on the EPA to prove that they are unsafe. I think it should be the other way around because the legal burden upon the EPA, once they are listed to delist them, is extremely significant. It is very, very hard to do legally and that's the testimony we heard earlier today from Mr. Kimm, that the legal requirement of delisting is real, real tough.

Mr. STICKLE. We are talking about different issues. What you are referring to, I think, is the effort to expedite the cancellation process and to change some of the suspension requirements. As you are probably aware, there is legislation in both the House and the Senate to deal with that. We firmly support the effort to expedite the cancellation of products.

Very candidly, products take an average of above 5 years to cancel and some take longer than that. Very candidly, that is too long. I think the public has a right to a much quicker——

Senator REID. Wouldn't we be better off if we didn't have to go through that process if in fact you wanted to sell diazinon insect spray that the burden is upon you to show with tests that the company had run that the product is safe or if it isn't safe, what kind of disclaimer should be made on the product rather than having the EPA do this?

Mr. STICKLE. It works both ways, Senator, because if you're going through a special review process, the company does have an opportunity to come in to demonstrate that the product is safe, the product is efficacious, they do have that opportunity in a special review process which is part of the overall cancellation process, so there is some give and take.

A company is going to need to defend the fact that its product works and that it is safe, and very candidly, it is in its best interest to demonstrate that its product is safe and it is effective and efficacious. That is part of the process and I would agree that it takes too long to get there, but there is some give and take in that process.

Senator REID. My staff gave me something here that cleared up a problem I've had in my mind for a while and I understand it now.

Technically, EPA and the FDA system are the same, the problem we have is with the older pesticides like 2,4-D which was effectively grandfathered in in 1972, so for the older pesticides, the burden is on the Environmental Protection Agency. For the new ones, I'm told the burden is equally balanced. In fact, it may even be on the company to prove that it's safe. That's my mistake and I take back the lecture I just gave.

Senator Lieberman.

Mr. VROOM. In point of fact, Senator, the reregistration process which FIFRA 1988 did put in place shifts that burden now on a scheduled basis prioritized by compounds that are identified to be the most potentially threatening and that burden is on the companies to do the testing and present the data to EPA.

That's a mountain of data and there's a lot of work that has to be done to make up for a lot of years where the debate took place before the work got underway. As I alluded to in my statement, the industry expects to spend in excess of $3.5 billion in research testing of those older chemicals to present that new data to the agency over the next 6 years.

It is a significant burden and the burden is also on the agency to keep up with the pace of reviewing the data that will be submitted.

Senator LIEBERMAN. Thank you, Mr. Chairman.

Actually, Mr. Vroom, you've answered my first question which was that you are at work within the industry, I take it, on the review of the so-called older chemicals in preparation for this reregistering so that some of the considerable amount of money you described is not just for new chemicals but it's to go back and look at the old ones such as 2,4-D?

Mr. VROOM. Yes.

Senator LIEBERMAN. Let me ask you because we've grown so skeptical about anybody meeting any deadlines around here, do you think EPA is going to be able to meet the—GAO came in today and said 32 or 34 of the major chemicals constituting 90 percent of the pesticides on the market have not been reviewed—when do you think the job is going to be done?

Mr. VROOM. We still are optimistic that the 9 year schedule can be met. So far, in the preliminary phases on the first list of chemicals to be examined, all the deadlines have been met. There are looming additional deadlines that do trouble both us and the agency, mostly because of the fact that the user's fees that we now are paying to EPA from the industry, which will amount to $170 to $190 million, which is the first time industry has paid user fees to the agency, those monies are being perhaps not spent in the way we would like to see them spent. They are bottled up at OMB as many new programs get bottled up because of overhead considerations and other things that can be bottlenecks to the system.

If we lose a month now, it can translate into several months of delay in two or three years.

Senator LIEBERMAN. In other words, in your opinion, user fees which you assumed were going for what?

Mr. VROOM. To hire new scientific staff and support staff at EPA in order to be able to process the examination of the data that we are generating on the old chemicals.

Senator LIEBERMAN. As far as you know, that is not happening?

Mr. VROOM. It is happening on schedule but they are having difficulty recruiting enough new scientists to fill the positions as required and that's a challenge throughout Government to be able to compete with private industry for scientific capacity out there.

Senator LIEBERMAN. Do you think some of that is being held up at OMB, is that what you are suggesting?

Mr. VROOM. There are some early indications there may be some delays there.

Senator LIEBERMAN. It wouldn't be unique?

Mr. VROOM. No.

Senator LIEBERMAN. I think maybe you put your finger on a problem and maybe we can pursue that.

Dr. Gough, if I may get into the broader problem through your testimony on 2,4-D, it's my understanding that governmentwide cancer policy says that negative epidemiological studies are not of much significance because finding epidemiological effects, positive effects, are so rare and unlikely and that's why a lot of people have viewed the National Cancer Institute studies on 2,4-D in the incidence of brain tumors as fairly significant.

I am also impressed as a layperson by the fact that the Task Force that you talk about, of the 13 people there, 11 concluded that 2,4-D was possibly a human carcinogen. I understand that there are varying degrees of conviction in that conclusion but to me that raises enough of a question that I think either EPA should force those who are selling this product to at least give some warning to the public or the companies that are manufacturing should, as a matter of their own either ethical responsibility or their own sort of legal defensiveness to protect themselves from litigation, provide some warnings.

I know in your own testimony you conclude that the level of risk for 2,4-D is reduced with routine precautions such as wearing gloves and yet I looked at this bottle again when I heard you and the only real clear warning on that is keep out of reach of children. On the back there is some suggestion that you should avoid contact with the skin but the picture on the front has an uncovered hand spraying this stuff.

That is part of what aggravates us and we're listening. Senator Reid and I are concerned but we can't reach final conclusions but we hear enough that troubles us to want us to see some adequate warning on this as to proper use and the possibility of risk for consumers. I invite your response to that.

Mr. GOUGH. There are a lot of things I could respond to. Let me respond to the last part of your comments first. We live in a chemical society and we are going to live in a chemical society, and all of us are going to be handling chemicals at one time or another. I think it is important that people do receive appropriate warnings about how to use them. I think that one of the positions of the Industry Task Force is that whatever risk is shown by those NCI studies between 2,4–D and cancer, it goes way down if you wear long sleeved clothes. I noticed that Dr. Zahm said that this morning in her testimony as well.

Senator LIEBERMAN. So that should be said right here in big letters, shouldn't it?

Mr. GOUGH. I think something should be said. The label soon gets so big that you can't find the bottle behind it and that's a legitimate concern, I think, what do we say.

Senator LIEBERMAN. But this is something different.

Mr. GOUGH. You mean wearing gloves?

Senator LIEBERMAN. Yes.

Mr. GOUGH. Yes, I would agree with that. I wanted to respond also to your comment about negative epidemiology. 2,4-D is quite unusual in that the animal studies, as Dr. Zahm said, are quite equivocal. Therefore, we depend on human studies to do risk assessment for 2,4,-D. There are other studies that have been done using much the same methodology as Dr. Zahm's that have not found an association, there are other studies using different tech-

niques that have not found an association. The conclusion of the workshop was that we did accord a lot of respect to Dr. Zahm's findings but they are not convincing. What we'd like to see is investigation of the methodologies to see why these don't agree better.

Senator LIEBERMAN. Dr. Yeary, in listening to your testimony, I was in part disturbed but in part you make a strong point which is that EPA has the power to ban the stuff if it's that bad. That is part of the problem. The disturbing part of it was what is the obligation of the industry in the midst of all that, based on what you know? Again, I go back to the labeling. I know you're with Chemlawn and you obviously know about the lawsuit that Attorney General Abrams has filed. Maybe you want to respond. Maybe this is not the proper forum.

He testifies that you represented that this stuff--not you but the company in brochures—was safe and practically non-toxic, and now there is an admission according to Mr. Abrams that four of the components are probable carcinogens.

Can't we expect a certain degree of initiative from the industry to try to better protect the consumers without alarming them? We are not reaching conclusions but I know enough to want something more than the stuff that is on these bottles.

Dr. YEARY. Yes, I'd like to respond to that, Senator. Attorney General Abrams is a good attorney so he presented his version of the case here today. I would dispute the facts he presented in the case.

Senator LIEBERMAN. You didn't admit that four of the components were carcinogenic?

Dr. YEARY. He didn't give you the whole issue. The whole issue was we prepared that piece in 1987. At the time, the four agents in question—maneb, mancozeb, chlorothalonil, and formaldehyde which was used as a preservative, formerly used as a preservative in another product—had not in fact been classified as probable human carcinogens at the time we made that statement.

Senator LIEBERMAN. I other words they hadn't been classified at the time you put that declaration in your brochure?

Dr. YEARY. That's correct, and we have subsequently not only deleted that statement but we have also suspended from use three of the products, one of which is still under review.

Another initiative that we took independently is we invited Dr. Zahm to come to us and to look at our records and we'd provide her with access to all the records of the company and we have far more exposure data, and history of what took place than anywhere in the world for the period 1969 through 1987.

We also at that time discontinued in our company the use of 2,4-D voluntarily while we assessed this issue with the National Cancer Institute, so we took initiative. The NCI had 11 people in our facilities for almost a year and a half going through every record taken out of fire proof vaults for over 30,000 employees. They had access to anything they wanted, computer tapes and what have you, so that's an initiative that was taken to resolve the issue because there were still some unresolved questions about the quality of the information that Dr. Zahm was able to obtain in the Kansas study. So we took a great risk and have received a fair

amount of criticism for it, but we are committed to it, so we have done a number of things.

We have conducted multiple exposure studies of our workers and we have been doing exposure studies for many, many years. So we are not working in a vacuum.

Senator LIEBERMAN. Are you using 2,4-D again?

Dr. YEARY. No. We are awaiting first of all, the results of the NCI study. The NCI study was released in the Journal of the American Medical Association on the 6th of September and we discontinued all purchasing on the 9th of September 1986.

Senator LIEBERMAN. I want to say I admire you for that decision and in a certain sense, it makes me even angrier that I can go out and buy this stuff that has 2,4-D in it and nobody is warning me. It's not your fault.

Dr. YEARY. There is a disagreement within the industry. As I say, we have received our fair share of industry criticism for taking that position but we have a great deal of responsibility to our employees and I think the key issue was the Cancer Institute study really said the risk was associated with the number of days of application, not the number of years of work. I could not answer to our employees when the cancer study said there is increased risk of more than 20 days of application, I could not give a good answer to our employees who say what's my risk when I handle it 80 to 100 days a year? I think the only way to do it was to invite the experts in and say let's assess the situation.

Senator LIEBERMAN. I think it's time for Senator Reid to go home and take care of his lawn. Thank you all.

Senator REID. We appreciate very much your patience, as I indicated. Your testimony has been most helpful to the committee.

The committee now stands in recess.

[Whereupon, at 5:04 p.m., the subcommittee was adjourned to reconvene at the call of the Chair.]

[Statements submitted for the record follow:]

United States General Accounting Office

GAO Testimony

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Lawn Care Pesticide Risks Remain Uncertain While Prohibited Safety Claims Continue

Statement of
Peter F. Guerrero, Associate Director
Environmental Protection Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Toxic Substances,
Environmental Oversight, Research
and Development
Committee on Environment and Public Works
United States Senate

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to be here today to discuss our report on the Environmental Protection Agency's (EPA) progress in reassessing the health risks of widely used lawn care pesticides and information the lawn care pesticides industry provides to the public about the safety of its products.[1] Our report also provides information on federal enforcement actions taken against prohibited lawn care pesticide safety advertising claims.

Nearly 4 years ago we reported to this Subcommittee on EPA's lack of progress in reassessing the chronic health risks associated with the use of nonagricultural pesticides and on the limited federal monitoring and enforcement action being taken against safety advertising claims made by the pesticides industry.[2] In that report, we concluded that there is considerable uncertainty about the potential for nonagricultural pesticides to cause chronic health effects, such as cancer and birth defects, and that reassessing the health risks of using these pesticides may take a long time. We also concluded that the general public receives misleading information on pesticide hazards and that EPA had made limited use of its authority over unacceptable

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[1]Lawn Care Pesticides: Risks Remain Uncertain While Prohibited Safety Claims Continue (GAO/RCED-90-134, March 23, 1990).

[2]Nonagricultural Pesticides: Risks and Regulation (GAO/RCED-86-97, April 18, 1986).

advertising safety claims. We recommended that EPA take steps to strengthen and improve its program for controlling such claims.

Last May we testified before this Subcommittee and stated that EPA was still at a preliminary stage in reassessing the risks of older pesticides and had not completely reassessed any pesticides.[3] We concluded that while EPA had made some progress, it still had much work to do.

As a result of our earlier findings, this Subcommittee asked us to determine what progress EPA has made in reassessing all of the risks associated with the use of lawn care pesticides and in enforcing safety advertising claims. Our follow-up work showed that EPA continues to make limited progress in reassessing the health and environmental risks of pesticides applied to lawns and on food crops. Of the most widely used lawn care pesticides, none of those subject to reregistration has been completely reassessed. We also found that prohibited pesticide advertising claims that EPA classifies as false and misleading are still being made by the lawn care pesticides industry. Yet EPA has taken even fewer formal enforcement actions in recent years than it did during the 1984 and 1985 period we reviewed for our earlier report.

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[3]Reregistration and Tolerance Reassessment Remain Incomplete for Most Pesticides (GAO/T-RCED-89-40, May 15, 1989).

BACKGROUND

Pesticides used for lawn care purposes are chemicals or biological substances designed to kill and control living organisms--unwanted species of plants, insects, and animals. They are used in places where people live, work, and play. They are used in such places as gardens, parks, and on lawns and golf courses. Because lawn care pesticides are designed to destroy or control living organisms, exposure to them can be hazardous.

According to 1988 estimates provided by EPA, lawn care pesticides constitute a large and growing market. Sales of lawn care pesticides in the United States have increased to over $700 million annually and result in about 67 million pounds of active ingredients being applied. The professional lawn care business has developed into a billion dollar industry over the last decade as more and more people have turned to such companies for lawn maintenance. This business has experienced unprecedented growth, and the demand for these services is still growing. EPA estimates that professional lawn care companies, treating mostly residential lawns, do a $1.5 billion dollar annual business and that as many as 11 percent of single family households use a professional applicator.

Under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA is required to evaluate the risks and benefits of a

proposed pesticide before it is registered for use. More recently, the FIFRA Amendments of 1988 (known as FIFRA '88) imposed mandatory time frames and provided resources to help accelerate the reregistration of older pesticides, including lawn care pesticides. Reregistration is the process of bringing approximately 24,000 registered pesticide products into compliance with current data requirements and scientific standards and taking appropriate regulatory action on the basis of this new knowledge.

EPA has authority under FIFRA to take enforcement action against safety advertising claims made by pesticide manufacturers and distributors. Specifically, FIFRA section 12(a)(1)(B) prohibits claims made as part of a pesticide's distribution and sale that differ substantially from claims made as part of a pesticide's registration application.

However, section 12(a)(1)(B) applies only to the distributors and sellers of pesticides, not to the users, such as professional pesticide applicators. Thus, EPA has no enforcement authority over product safety claims made by pesticide applicators, even though they sometimes make claims that would be subject to enforcement action if made by a pesticide distributor.

The Federal Trade Commission (FTC), under its legislative authority to protect consumers against false and deceptive advertising, can take enforcement action against pesticide

applicators as well as manufacturers and distributors. FTC considers a pesticide advertisement to be deceptive if it contains a material representation or omission that is likely to mislead consumers from acting reasonably under the circumstances. To determine whether an advertisement is deceptive, FTC looks at the advertisement as a whole, rather than at individual statements.

HEALTH RISKS OF LAWN CARE PESTICIDES HAVE NOT BEEN FULLY REASSESSED

Our 1986 report contained a list of 50 pesticides widely used in nonagricultural products. We concluded that the health risks associated with their use were uncertain and that until EPA completed its reassessments as part of the reregistration process, the public would continue to be exposed to unknown health risks associated with these pesticides.

As part of our follow-up work, we planned to update the reregistration status of the 50 pesticides to determine what progress EPA had made in reassessing their health risks. We found, however, after reviewing them with EPA officials that many did not have major lawn care uses. Thus, for our follow-up work, we used a list of 34 pesticides that EPA identified as currently representing those most widely used for lawn care purposes.

We determined the current reregistration status of each of the 34 major lawn care pesticides. Two are not subject to reregistration because they are newer pesticides subject to current registration standards. Of the remaining 32 pesticides, none has been completely reassessed: 23 have been issued an interim registration standard, while 9 have yet to be evaluated in terms of their data needs and conditions of reregistration.

We also determined that six pesticides were subjected to Special Review because of concerns about their chronic health and environmental effects. These concerns range from cancer to wildlife hazards. Two of these pesticides, diazinon and 2,4-D, have been determined to be the most widely used pesticides for residential lawn care. I will now discuss some of the health and environmental concerns associated with the use of these two pesticides as well as EPA's latest actions to address these concerns.

Diazinon is an insecticide used to control a variety of insects found around farms and nurseries, around commercial establishments such as restaurants, and around homes and gardens. Diazinon, in fact, is the most widely used pesticide on residential lawns. According to 1989 EPA estimates, about 6 million pounds of diazinon are used on home lawns and commercial turf.

EPA subjected diazinon to its Special Review process when it found that it was killing waterfowl and other bird species. A Special Review is EPA's evaluation of the risks and benefits of pesticides of particular concern to determine whether regulatory action is needed. As a result, EPA cancelled uses of diazinon on golf courses and sod farms, although bird poisonings on residential lawns and in corn and alfalfa fields have also been reported.

Due to a number of homeowner poisonings from misuse of diazinon, EPA imposed labeling requirements in order to provide information to and protection for the homeowner. EPA has also placed a restricted use requirement on diazinon's commercial outdoor uses (on agricultural crops, for example). Only certified applicators or persons under their direct supervision can apply the pesticide because of its potential hazard to various bird and fish species. This restriction, however, does not apply to commercial lawn care companies and homeowners because EPA believes more criteria are needed to determine the appropriateness of restricting pesticides currently available to the homeowner. EPA has called for additional toxicity data with regard to diazinon's effects on human health, but until these data have been received, diazinon's use on lawns raises uncertainties about its risks to humans.

An ingredient in more than 1,500 pesticide products, 2,4-D is a weed killer that has been used extensively by farmers and home gardeners for over 40 years. About 60 million pounds of 2,4-D are

used annually in the United States, primarily by wheat and corn farmers. Almost 4 million pounds are used annually on residential lawns.

EPA notified the 2,4-D registrant in 1986 of its intent to place the pesticide in Special Review based on evidence of increased cancer risk among farmers handling similar types of herbicides. However, the decision whether to place 2,4-D in Special Review because of possible cancer risk will not be made until late summer 1990 upon completion and review of two epidemiological studies. Further, as part of 2,4-D's registration standard, EPA has called for additional laboratory testing for birth defects and other potential long-term effects for which adequate data are currently unavailable. It will be some time before EPA will make a determination on 2,4-D as these tests may require up to 50 months to complete.

Given the continuing uncertainty of the health risks of lawn care pesticides and EPA's particular concerns about the six pesticides in Special Review, we believe it is all the more important that the public is protected from pesticide advertisements that convey the impression of safety. Yet the pesticides industry continues to make advertising claims that its products are safe or nontoxic while federal enforcement actions against such claims remain limited.

ENFORCEMENT ACTIONS NOT BEING TAKEN ON PESTICIDE SAFETY ADVERTISING CLAIMS

EPA has taken few formal enforcement actions against unacceptable pesticide safety advertising claims since our earlier report. EPA's data showed that between October 1, 1986, and September 30, 1989, EPA took 17 civil penalty enforcement actions under FIFRA section 12(a)(1)(B). Only one of these actions involved a lawn care pesticide safety claim. Most of the others involved health claims for disinfectants (a class of pesticides) and claims for uses other than a product's registered uses. In comparison, we reported earlier in 1986 that EPA took 18 civil penalty enforcement actions between January 1, 1984, and July 30, 1985--a period of 19 months. Thus, current enforcement activities indicate that reviewing and enforcing pesticide advertising receives less EPA attention now than before.

According to EPA's Compliance Division Director, pesticide safety advertising claims have been and continue to be a low priority because of limited resources and because other unlawful acts under FIFRA, such as pesticide misuse, are EPA's primary concerns. Additionally, EPA does not have an active program to screen pesticide literature nor an enforcement strategy to make better use of its limited resources and ensure proper attention to unacceptable claims. EPA takes enforcement action against

unacceptable pesticide claims as situations are brought to its attention.

Besides taking action under FIFRA, EPA can refer improper advertising claims to FTC. In 1986 and for this update, EPA's Office of Compliance Monitoring could not tell us how many cases EPA had referred to FTC for enforcement action, explaining that the Compliance Division did not keep records of referrals. FTC's Associate Director for Advertising Practices could recall only one case--an efficacy claim--and while he believes there may have been referrals at the regional office level, he had no available data on these cases.

FTC rarely initiates action against pesticide advertising claims. In 1986, its Program Advisor for General Advertising (which includes pesticide advertising) could recall only about three pesticide actions within 10 years or so. Since 1986, FTC has initiated 11 pesticide-related investigations, most of which involved efficacy (effectiveness) claims. None, however, involved a lawn care pesticide safety claim. According to FTC's Associate Director, Division of Advertising Practices, while FTC is still concerned about pesticide safety advertising claims made by manufacturers and distributors, it prefers to defer to EPA in area because of EPA's specific statutory authority and technical expertise.

For our current report, we reviewed manufacturers' and distributors' pesticide advertising and found they are still making safety claims that could discourage users from following label directions and precautionary statements. Examples of the health and safety information we found included statements such as:

-- "[This product] is safe to use. It won't harm flowers, foliage, or fruit. There's no danger to honeybees or other beneficial insects. And [this product] is safe to applicators. . . " and

-- "[This product is] non-toxic: completely safe for humans, the environment, and beneficial insects."

A more complete listing is contained in our report being released today.

Such claims are prohibited by FIFRA because they differ substantially from claims allowed to be made as part of the pesticide's approved registration. EPA, using its standards for pesticide labels, considers that such claims when made by manufacturers and distributors are false and misleading.

Professional lawn care pesticide applicators are also making claims that could lead consumers to believe that the pesticides applied around their homes are safe or nontoxic. In addition, some

of the professional lawn care company representatives we talked to made safety claims for their products over the telephone. Our report contains a complete listing of applicator safety claims.

While the effect of professional applicator safety claims is uncertain, we believe that such claims may persuade consumers to purchase a service they otherwise would not use or discourage reasonable precautions to minimize exposure, such as avoiding recently treated areas. EPA does not have authority over claims by professional pesticide applicators. FTC, under its own legislation, can act against unacceptable safety claims by applicators, but FTC believes that EPA has been successfully handling such claims through informal actions taken by appropriate EPA regional offices. EPA headquarters officials could not tell us whether pesticide claims referred to its regional offices since 1986 involved any applicator claims. We have since checked directly with four EPA regional offices, and they could not recall any action against advertising claims by professional pesticide applicators. Because neither agency is acting against safety claims by pesticide applicators and because FTC prefers to defer to EPA for action in this area, we believe that EPA needs to seek authority under FIFRA for regulating such claims.

RECOMMENDED ACTIONS

In our report we recommend that EPA take the following actions:

-- Because EPA does not have authority over pesticide applicator claims, and since FTC, which has this authority, prefers to defer to EPA because of its technical expertise, EPA should seek legislative authority over safety claims by professional pesticide applicators.

-- Also, in order to protect the public from prohibited pesticide safety claims, EPA should enforce FIFRA section 12(a)(1)(B). In doing so, it should develop an enforcement strategy to include, among other things, the effective utilization of staff resources.

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In conclusion, as we testified last May before this Subcommittee, the expeditious reregistration of pesticides is paramount to reducing the uncertainty surrounding their risks. We stated, however, that while EPA had made some progress in this regard, it still had much work to do. We continue to believe that while FIFRA '88 can help accelerate the reregistration process, reregistering pesticide products and reassessing their risks remain

formidable tasks. In the interim, the general public's health may be at risk from exposure to these pesticides until EPA's reassessments are performed and regulatory action has been taken. Additionally, we believe that without an effective federal enforcement program, the lawn care pesticides industry will continue to make prohibited safety claims that EPA classifies as false and misleading and that could discourage users from following label directions and precautionary statements or lead consumers to believe that the pesticides applied around their homes are safe or nontoxic.

Mr. Chairman, this concludes my prepared statement. I will be glad to respond to any questions that you or members of the Subcommittee might have.

Good morning Mr. Chairman and members of the Subcommittee. My name is Sharon Malhotra and I'm a registered nurse. I live in Murrysville, Pennsylvania, which is a suburb of Pittsburgh, and I'd like to share with you my experiences regarding exposure to lawn-care chemicals.

I previously enjoyed excellent health throughout my lifetime. I've never experienced any major illnesses, although I did have migraine headaches many years ago. These headaches were very infrequent from about 1975 until the early spring of 1985, which was the first spring that I lived at a townhouse complex that utilized a lawn-care company. At the time, I was five months pregnant with my first child when I suddenly went into unexplained premature labor, and in order to preserve the pregnancy, I was confined to bedrest. This occurred in late March, a time of year when a great deal of lawn spraying takes place. Soon, I developed severe headaches. I continued to experience these headaches until the late autumn, long after the birth of my first child. The headaches once again began the next spring. I was also with child at the time, and I began to think that the headaches were due to my pregnancy. However, my husband who is an internal medicine and cancer specialist, thought this to be highly unlikely since migraine headaches usually disappear during pregnancy. The headaches once more subsided in the late fall.

The headaches mysteriously began again on May 29, 1987. The lawn had been treated that day; however, we were told that only fertilizer was applied (we learned later that an insecticide

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NOTE: Attachments to this statement have been retained in committee files.

had also been applied). It was at this point that we realized these headaches always seemed to begin on days the lawn was treated. The next day, the headache continued, but I was able to attend a community picnic at the pool. After a short time at the picnic, the headache became excruciating in nature. This headache was so severe that it was only partially controlled with strong medication (Fiorinal); the headache was never completely relieved. The intensity of the pain increased to the extent that it was necessary for me to remain in bed. In addition to the headache, I was soon experiencing nausea, paresthesias (numbness) of the nose, tongue and arms, difficult articulation, visible fasciculations (muscle twitching), extreme fatigue, an inability to concentrate, and ocular and neck pain. I could no longer function as a normal human being, and I could no longer care for my children. It became necessary for my parents or my aunt to remain with me until my husband returned from work. This continued for about a two-week period.

We decided that it was time to investigate the cause of my symptoms, and I first saw a neurologist on June 16, 1987. After a comprehensive physical examination, he concluded that I had no major neurologic disorder, and that I was suffering from migraine headaches that could, in fact, be due to exposure to the lawn chemicals. He placed me on prophylactic medication and suggested that I either avoid the lawn chemicals, or change my place of residence. It was not possible to uproot my family at the time, so I could only hope to avoid these chemicals. I also underwent extensive allergy testing with no significant

results.

Unfortunately, an insect problem soon developed in the townhouse community. On June 23, 1987, after noticing a strange chemical odor in my house and experiencing a "tight" sensation in my chest, I looked outside and saw that a liquid was dripping from the tree directly in front of my window. A lawn-care truck was present, and a few houses away an applicator was spraying another tree. I immediately telephoned the lawn-care company and complained that no one had notified the residents of this application, and that I had become ill following an earlier lawn application. Soon, I felt nauseated and the headache began once more, despite the fact that I was now taking medication that was supposed to prevent migraine headaches. A couple of days later, the insects were still in the tree, and the odor of the chemical had made me feel so ill that I sprayed the tree with water to rid it of the pesticide. In the process, some of the water from the tree dripped onto my body as I naively watered the flowers beneath. I immediately experienced visual field distortions along with numbness in one of my arms, my face and my tongue. Within the hour, I was violently ill with severe abdominal cramping, nausea, dry heaves and an incapacitating headache. A few days later, the fasciculations and extreme fatigue began. I began to keep a log of my symptoms and, after listening to my symptoms, my husband felt that I was suffering from some form of cholinesterase inhibition. I saw the neurologist again in July, 1987, and I mentioned that the symptoms began once more

after a period of insecticide spraying. These symptoms again persisted for about two weeks, after which I felt fine with the exception of some paresthesias.

In the meantime, my husband and I decided to investigate which chemicals were being applied, and whether or not they exhibited cholinesterase inhibition properties. After a telephone inquiry to the lawn-care company, we were sent pamphlets stating that the chemicals used were "practically non-toxic," were not harmful to humans or pets, that they were registered for use by the E.P.A., and that they had passed the lawn-care company's "rigorous" scientific procedures. These pamphlets also stated that a child would have to ingest the amount of pesticide found in almost ten cupfuls of treated lawn clippings to equal the toxicity of one baby aspirin.

We believed that E.P.A. registration meant that the chemicals were safe, and that the E.P.A. would never permit the use of a chemical on lawns unless chronic and long-term health effects were known. But, as medical professionals, our curiosity was not satisfied, and we felt a need to obtain the names of the chemicals that were applied, along with their Material Safety Data Sheets and E.P.A. studies. After many telephone calls to the lawn-care company requesting this, the names of the chemicals and accompanying Material Safety Data Sheets were sent to us, along with a letter stating that it is not the lawn-care company's practice to supply the Material Safety Data Sheets, but that they were sent since our "not receiving them seems to be an important issue."

We began to accumulate data on the chemicals and were shocked at what we found. Not only were some of these chemicals organophosphates and potent cholinesterase inhibitors, but there were no E.P.A. studies on the chronic or long-term effects of exposure to these chemicals. And, there was no ongoing program to monitor for any adverse health effects. In addition, the General Accounting Office was questioning whether lawn-care companies were violating the Federal Trade Commission Act by engaging in false and deceptive advertising claims. We were compelled to rush out and inform our neighbors of our findings. We attended the next community meeting and shared our concerns with everyone present. Their response was, "it says here that their products are E.P.A. registered and are safe." It was obvious that the lawn-care company had done an excellent job of marketing their products as "safe." The general public is clearly under the mistaken impression that E.P.A. registration guarantees safety.

We quickly sent a letter to the lawn-care company and the townhouse community requesting that our property be excluded from future lawn or tree applications. The community was again treated for insects on July 21, 1987. I had been notified the day before, and left during the application. When I returned home, I immediately experienced the chest tightness along with a visual field distortion and developed another headache. Even though we had requested that our area not be sprayed, it was obvious that a shrub directly off our porch was treated, since the odor of the chemical surrounded only this shrub and

no others on our property. We had a branch independently analyzed, and acephate was indeed detected on its branches.

I contacted the Pennsylvania Department of Agriculture and filed a complaint. A pesticide inspector visited our home and took swab samples from our door and windows. Even though the involved lawn-care company states that it no longer uses 2-4-D, the analysis showed that this chemical, along with benomyl and dicamba, was present on our front door.

At our urging, the community agreed to try another lawn-care company utilizing a less-toxic approach the following year. I'm happy to say that I was not ill at all this particular summer. However, I did have a baseline cholinesterase level drawn, in the event it was needed for future exposures. Unfortunately, that was the year of the drought, and residents blamed the new lawn-care company for the poor condition of the lawn.

The next January (1989), the townhouse resident manager had secured only one bid for lawn treatment, and it was from the same company that had treated the lawn with the toxic chemicals. My husband and I were in the process of constructing a home elsewhere, far away from pesticide problems we hoped, however we would not be moving until June at the earliest. We were concerned that I would become violently ill if the lawn was treated with these chemicals. I could not afford another "lost" summer, but board members were insistent upon spraying despite my pesticide-related illness. Only after our attorney sent a letter requesting that the community not

spray, but use granules instead, did they agree not to apply these chemicals, and I was able to function normally.

On June 12, 1989, we held a closing for the sale of our townhouse. On the same day, a newspaper article appeared concerning lawn pesticides which mentioned the problems I experienced after exposure to these chemicals. During the closing, the buyer (a relative of a member of the townhouse board of directors) claimed that we did not inform him that our house was "contaminated with pesticides," and we were required to place $2,000.00 from the proceeds of the sale into an escrow account to be used for chemical analysis of the townhouse. This was to ensure that the house was free from any pesticide residue, despite the fact that it had been nearly two years since the lawn had been chemically-treated, due to our efforts.

We moved into our new home in the country on June 17, 1989. Even though it was possible that some of our neighbors would chemically treat their lawns, we were in the middle of 1 2/3 acres, and many homes had at least 2 to 4 acres of land. We truly felt that as long as I received advance notification and due to the distance and minute amounts of pesticides utilized during lawn treatments, I would not experience any major problems.

I was notified on May 1, 1989, by the Pennsylvania Department of Agriculture that I had been placed on the state maintained voluntary registry of persons hypersensitive to pesticides, and my new address appeared on the label. This

registry is to be consulted voluntarily by any lawn-care company making an application in the neighborhood.

I was feeling quite well until the morning of June 27, 1989, when I walked onto our patio to confer with bricklayers who were still working on our home. I immediately experienced difficulty breathing, but was not sure what had caused this. I went indoors for a few minutes, then went back out and again experienced more difficult breathing. My aunt had been taking my two small children for a walk. Soon, they all were running down the hill, and my aunt informed me that a neighbor's lawn was being treated. I received no advance notification, despite the fact that I was now on the registry. When I contacted the Pennsylvania Department of Agriculture, I was told that the registry had not yet been updated, even though it was nearly two months since I received the letter stating that I was placed on this registry.

Later that night, I began to experience a headache. When my husband questioned as to whether it could be due to the pesticide application, I told him that I doubted it, simply because the treated lawn was too far away (about 500 feet). During the next few days, the headache increased in intensity, and became so violent that I was completely disabled. The strongest medication could not relieve the pain. These headaches continued for six days, with the familiar visible muscle twitching and paresthesias now occurring. I was so extremely fatigued that I could only climb half-way up the stairs. Nine days after this exposure, I had a cholinesterase level drawn,

and the result was a 25% decrease from the baseline I had drawn earlier. We were able to correlate a decrease in my symptoms with a return to my baseline cholinesterase level.

Since this nightmarish experience with lawn chemicals, I began experiencing all sorts of allergic-type reactions to many other substances, including foods that I had consumed for many years without any problems. I don't dare leave my home without benadryl in my purse, and I continue to take the prophylactic medication. I have since had numerous episodes of symptoms similar to those I've experienced following pesticide exposure after shopping in hardware stores where pesticides are sold, after shopping in pet stores where flea sprays are sold, and even while sitting in the veterinarian's office. Everytime I leave my home, I am risking pesticide exposure without my consent, since I have no way of knowing where or when a pesticide was applied. Also, we will soon be forced out of our home for several days, as our county is planning an aerial application of a chemical insecticide to a wooded park area just across the street from our home with the hope of controlling a gypsy moth infestation--an infestation that could have been controlled with a biological agent.

There are many other individuals who have also lived through this nightmare. Surprisingly, some of the most peculiar symptoms are shared by hypersensitive individuals after exposure to similar pesticides. For example, many complain of numbness in the nose, mouth or tongue, extreme fatigue, neck pain and difficult articulation.

Since the lawn-care industry is rapidly growing, millions

of Americans--including children and the infirmed--are frequently exposed to pesticides. As a health-care professional, I feel there is a need for (1) studies to determine the hazards of chronic and long-term exposure to these chemicals; (2) accurate information to the consumer regarding the known and unknown hazards of exposure to these chemicals; (3) mandatory posting of all treated areas, indoors and out; (4) education of medical professionals in this area; and, (5) a federal registry of pesticide incident reports.

I ask that members of this Subcommittee take a leadership role in providing accurate information to all Americans, and take whatever steps necessary to safeguard our nations' future public health.

30-497 - 90 - 5

Testimony of
Robert Abrams
New York State Attorney General

Before the
Subcommittee on Toxic Substances, Environmental
Oversight, Research and Development of the
Senate Committee on Environmental and Public Works
March 28, 1990

Good morning. I thank Senator Reid and his colleagues for devoting this important hearing to the potential health risks of pesticides used on lawns, gardens and public places.

Only within the past few years have we begun to acknowledge that the lawn care industry is a consumer service industry and should be regulated as such. The fact that the industry markets toxic chemical products for uses that are fundamentally aesthetic should make government particularly vigilant in regulating the industry. Unfortunately, this has not been the case.

Today there are basically only two ways customers of commercial lawn care companies and do-it-yourselfers find out about the safety of lawn care pesticides. One is the pesticide label and the other is advertising by lawn care companies and manufacturers of retail pesticides.

Pesticide labels disclose, among other things, the names of the active ingredients in the pesticide mixture, certain limited warnings about the hazards of exposure to animals, humans and the

environment, and directions for use, container storage and disposal.

Relying on this current label is completely inadequate, particularly for typical lawn care consumers, such as suburban homeowners or city dwellers with children, pets and neighbors who may all be jeopardized by pesticide exposure.

The label gives minimal information about the environmental and health risks of pesticides. And a major piece of information that it does give--the EPA registration number--is widely misunderstood. An EPA registration number on the package is not a guarantee of safety, since the registration process is a balancing act of risks and benefits, not a safety determination.

The label also does not disclose the so-called inert ingredients of the pesticide product, which may be anything but inert when it comes to effects on human health. Benzene, toluene, xylene and formaldehyde are among those inerts which are just as toxic as the active ingredients or even more so. Some labels even tell pesticide users they can bury pesticide containers on their own property, even if containers still have pesticide residues left inside which could contaminate the environment.

As a consumer protection device, the pesticide label mocks the notion that "forewarned is forearmed."

This morning I want to urge Congress and EPA to make several changes in pesticide labeling.

First, EPA should require simple label language informing users that any pesticide use may pose potential health risks.

This warning, however, should in no way absolve manufacturers from liability for any damage their products may cause.

Second, to avoid confusing the public, the label should state clearly that registration is not a government guarantee that lawn pesticide use is free from risk. The General Accounting Office suggested this in 1986 but so far, EPA has failed to adopt the recommendation.

Third, EPA should require that all pesticide labels be legible and written in plain language.

And finally, EPA should require that lawn care companies provide consumers with copies of the warning labels for each pesticide which is used on their lawn.

Even if they receive meaningful label information on which to base their decisions about using lawn pesticides, consumers may be confused by a deluge of advertising by pesticide manufacturers, their trade associations and lawn care companies who all, of course, want to increase sales. These biased sources do not tell the full story.

We discovered that literature distributed in New York State by the ChemLawn Services Corporation, the largest commercial lawn care applicator in the United States, assured prospective customers that lawn pesticides are, and I quote, "safe" and "practically non-toxic." We believe these claims are false and misleading, in 1988, we brought the first false advertising case in the nation against a lawn care company after ChemLawn refused to halt these claims.

Such advertising claims are pervasive nationwide, yet EPA has brought only one enforcement action.

New York State has attempted to protect our citizens when the federal government failed to do so, but efforts at the state level alone are not enough. For example, we in New York now require lawn care companies to give customers the health warnings from the pesticide label, but only EPA can correct the deficiencies on the label itself.

Accuracy and full disclosure in labeling is only a part of the problem. The safety of pesticides remains the overriding concern. EPA and other authoritative scientific research bodies have concluded that several constituent ingredients of current lawn care pesticides are known or probable carcinogens. Moreover, pesticides may pose other health risks including central nervous system damage, birth defects and reproductive problems such as sterility. Clearly, FIFRA and its recent amendments have not gone far enough. It is time for Congress and the EPA to consider significant further steps to reduce the risk from lawn care pesticides.

First, EPA should address the public's confusion about pesticide registration by not allowing pesticides containing known or probable carcinogens to be used for aesthetic purposes like lawn care. The risks posed by these carcinogens are <u>not</u> outweighed by the benefits of an aesthetically pleasing green lawn.

Second, Congress should clarify that federal rules governing

pesticide advertising apply to lawn care applicators, not only pesticide manufacturers. EPA and the Federal Trade Commission should also be more aggressive in policing false or misleading pesticide advertising.

Third, Congress should create a private right of action under FIFRA, allowing any person to sue and recover legal costs to halt false and deceptive product safety claims by any person, including but not limited to manufacturers.

Pesticides once applied only in agriculture are now used widely around homes, on school grounds and in public parks. The nation may pay a high cost for letting these chemicals permeate our communities when we have such a limited understanding of their adverse effects.

In view of the many questions about pesticides, I believe very strongly that now is the time to err on the side of safety. People, not pesticides, should get the benefit of the doubt.

TESTIMONY OF
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DEPUTY ASSISTANT ADMINISTRATOR
FOR PESTICIDES AND TOXIC SUBSTANCES
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

MARCH 28, 1990

Good morning, Mr. Chairman and Members of the Subcommittee. I am pleased to be here today to discuss EPA's activities relating to pesticides used for lawn care. My testimony will focus on what EPA sees as the key issues surrounding pesticide use on residential lawns and what we are doing to address these issues. I will begin by providing some background information to help define the scope of this category of pesticide use.

The use of pesticides on lawns is both widespread and increasing. Many people desire neatly groomed, healthy looking lawns, and increasingly, homeowners are applying pesticides themselves, or hiring lawn care services that use pesticides, to achieve this result. A very substantial market has developed for pesticides to control weeds, insects, and diseases on lawns. According to recent estimates, homeowners and lawn care companies together spread on their lawns as much as 70 million pounds per year of pesticide active ingredients. To put this number in perspective, nearly 12 times that amount, or roughly 815 million

pounds of pesticide active ingredients are used annually in U.S. agriculture. Both commercial and homeowner markets for lawn care chemicals, which include both pesticides and fertilizers, are growing at approximately 5% to 8% per year in dollar value. It is estimated that about 7.5 million households hire commercial lawn care services, and that this industry has annual sales in excess of $1.5 billion.

Given this pattern of increasing use, and the potential for a large segment of the U.S. population to receive at least some exposure to these chemicals, EPA recognizes that the use of pesticides on lawns is an issue that warrants our careful consideration. EPA is committed to exploring opportunities for pollution prevention in this area, by encouraging both consumers and industry to follow integrated pest management practices which reduce reliance on pesticides.

Although long-term dietary exposure to pesticide residues -- that is, the food safety issue -- has been given top priority among pesticide issues by Congress, the Administration, and the public, EPA will be paying close attention to lawn care and other home pesticide uses, as we go through the reregistration process mandated by the 1988 amendments to FIFRA. The key to that process is the development of adequate, up-to-date data to evaluate the safety of continued registration of these uses. That problem

is not unique to lawn care -- it is the central task facing EPA for all of the older pesticides -- and the reregistration program set forth in the 1988 amendments to FIFRA is the means for bringing these data bases up to current standards.

I recognize that there are also some special concerns which arise in relation to lawn care as a category of pesticide use. In the rest of my statement I will discuss EPA's four general areas of concern and activity related to lawn care. These issues are: (1) testing data specifically needed to assess the safety of lawn care chemicals; (2) regulation of advertising claims about lawn care chemicals and treatment services; (3) the issue of requiring the posting of treated lawns; and (4) EPA's outreach efforts to educate and encourage the public and the lawn care industry to use chemical treatments responsibly, and to be aware of alternatives to total reliance on chemical treatments.

DATA REQUIREMENTS

The kinds of data needed to assess lawn care pesticides fall into three categories: (1) toxicity data, which are generally from laboratory studies, to identify possible adverse health effects; (2) environmental fate and ecological effects data, which identify the fate of the chemical in the environment after application, and its possible effects on non-target species; and (3) exposure data, which assess the frequency, extent and routes of exposure for people, including sub-populations such as children. As with all studies submitted to EPA, data on lawn

care pesticides must be developed in accordance with the Agency's FIFRA Good Laboratory Practice Regulations, to assure their quality and integrity.

The current data requirements for pesticides registered for "terrestrial non-food" uses, which is the description in our regulations that includes the lawn care use pattern, routinely require registrants to provide acute toxicity data for oral, inhalation, and dermal routes of exposure, as well as mutagenicity testing, and skin and eye irritation tests. In the past few years, the Agency also has required registrants to submit an additional battery of studies for some new lawn care pesticides. These additional tests are those normally required of food use pesticides, and include the studies needed to assess chronic health effects, including cancer, and developmental effects such as birth defects and other reproductive disorders. Although it is a recent policy to treat many lawn care pesticides like food use pesticides when imposing data requirements, it should also be noted that 29 out of the top 34 pesticides registered for lawn care also have food use registrations, and thus, have been subject to those data requirements in the past.

The environmental fate concerns for lawn care pesticides are essentially the same as those associated with agricultural pesticides. These concerns arise from the pesticide's potential to leach into ground water, or to run off into surface water. Incorrect use of application equipment and timing of the

application can also result in movement of a pesticide off-site through drift of spray particles. Depending on the levels of residues that move off-site through leaching, run-off, or drift, adverse effects on non-target plants and animals or exposed people could occur.

The evaluation of the environmental fate data supporting currently registered pesticides is being accomplished through the reregistration process. The data necessary to identify the potential of a chemical to leach into groundwater, and other information needed to clarify mobility and persistence in the environment are part of existing data requirements, and thus, have been or will be submitted to the Agency during this process.

To determine a pesticide's impact on non-target species, the Agency requires a variety of toxicity tests to be conducted on birds, fish and aquatic invertebrates. Other studies are conditionally required depending on the results of the tests just mentioned, the type of pesticide, its use pattern, and environmental chemistry and product chemistry data. Again, it is primarily through the reregistration process that the Agency will address concerns about the risks posed to non-target species such as birds resulting from pesticides used on home lawns, golf courses, and sod farms. When significant evidence arises to challenge the safety of these chemicals, the Agency can pursue regulatory action through its Special Review process, as we did in

the case of hazards to birds posed by diazinon use on golf courses and sod farms.

THE PROBLEM OF EXPOSURE ASSESSMENT

While many concerns about lawn care pesticides can be clarified by bringing all required toxicity, environmental fate and ecological effects data up to date, exposure assessment for lawn care poses some special problems. In general terms, we know that with lawn care pesticides, exposure occurs primarily through the skin or by inhalation. Ingestion of lawn care pesticides is also a possibility for children, as well as domestic animals and wildlife. Beyond these general principles however, there is very little scientific information that would help to assess the frequency and kinds of exposure to lawn care pesticides actually experienced by people or animals. To cite a few examples of the unknown factors, there are few data on how often people in different age groups are in physical contact with a treated lawn, or how much pesticide is available in that environment for dermal absorption or for inhalation, or how these levels change over time, or the extent to which these residues are transferred to the skin.

In the absence of adequate information or any agreed upon scientific approach to assessing this type of exposure, no guidelines or testing protocols are currently available for conducting an appropriate study of lawn care related exposure. However, EPA is seeking residue dissipation data on a case-by-case basis for new lawn care pesticides, and for older pesticides as

they move through the reregistration process. Methods for extrapolating these data to potential exposure need development.

EPA has several efforts underway to improve our exposure assessment capabilities. The Agency has been working with Health and Welfare Canada, the California Department of Food and Agriculture, and the National Agricultural Chemical Association to develop experimental protocols for monitoring indoor post-application residential exposure. It is possible that with further research, similar protocols can be used along with mathematical modeling to estimate outdoor residential exposure as well. In addition, this summer EPA plans to conduct a National Home and Garden Pesticide Use Survey, with interviews of 2,000 individuals, to provide data on all types of pesticide use by homeowners. This survey will provide a valuable picture of the pesticide use practices by homeowners, including use of lawn care pesticides.

Also in the area of research, a joint project is being considered between the Agency's Offices of Research and Development and Pesticide Programs to develop testing protocols and other guidance for conducting exposure monitoring studies for assessing all types of human non-dietary exposure to pesticides. This type of methodology research lays the essential groundwork for future data requirements, to better enable EPA to indicate to registrants how to conduct acceptable studies.

INCIDENT INFORMATION

Although risk assessment for lawn care pesticides is hampered by the uncertainties noted above, information on misuse or adverse effects incidents can provide some indication of acute problems being experienced with particular use patterns. EPA receives such information from a variety of sources. State regulatory agencies and our EPA regional offices provide information on enforcement actions and misuse investigations. In a recent informal poll conducted through our Regional offices, most of the states that responded indicated that misuse investigations related to lawn care made up 5 to 15 percent of their case load, and did not stand out as a problem in volume or qualitatively as compared to other categories of pesticide use.

It should be noted that misuse cases generally involve either label violations, such as improper application methods or use of unregistered pesticides, or administrative violations such as lack of a state license or proper record keeping. Thus, the available information on misuse investigations has limited relevance in assessing the exposure and health risk aspects of lawn care practices affecting the general public.

Some information about the public experience is available through the EPA-funded National Pesticide Telecommunication Network (NPTN), which handles telephone inquiries from the general public regarding pesticides. For example, from April 1 through September 30, 1989, NPTN received 18,935 telephone calls. The majority of

these were requests for information, but 3,148 callers reported adverse effects of some type. Four hundred twenty-four (424) of those callers (13%) reported lawn care related incidents. Of the 424 lawn care incidents, 233 callers reported human exposure incidents, 96 callers reported domestic or wild animal incidents, and 95 callers reported damage to turf, trees, or shrubs. The pesticides most frequently cited in these calls were diazinon, chlorpyrifos, 2,4-D, glyphosate, and carbaryl. These figures suggest that incidents are occurring, although not necessarily at an alarming rate. Also, this information should be treated with some caution, since it is unverified. NPTN does not currently have the necessary resources to conduct follow up activities to verify these telephone contacts. However, callers to NPTN are advised of the appropriate agency in their state to which potential misuse incidents should be reported.

The Agency will continue to monitor reports of lawn care incidents to help clarify the extent and type of risks lawn care chemicals pose as a result of proper use and misuse. However, the current information on adverse incidents and misuse does not make lawn care stand out as a category of use involving a pattern of serious or widespread incidents.

ADVERTISING CLAIMS

Another issue of concern to EPA is that inappropriate claims about the safety of lawn care chemicals are sometimes made to consumers. EPA strongly opposes such practices, because we are

concerned that false or misleading safety claims may lead to overuse or careless use of these and other pesticides.

In a recent case brought by the State of New York against a national lawn care company making such claims, EPA assisted the State, explaining that the risk/benefit balancing standard for registrations is not an appropriate basis for sweeping and absolute claims of product safety, and that EPA's regulations prohibit misleading safety claims on pesticide labels.

FIFRA section 12(a)(1)(B) gives EPA the authority to take enforcement actions against persons who distribute or sell a pesticide if they make claims that differ substantially from those made in connection with the pesticide's registration. EPA has interpreted this provision as applying to all claims appearing in writing, made orally, or appearing in any advertising media. EPA is currently drafting an interpretive rule which will clarify the Agency's policy for the public and the regulated industry.

It is important to point out, however, that current law does not grant EPA authority to regulate advertising claims made by certain home lawn care service companies. Under FIFRA, the statutory violation which relates to advertising applies only to persons who distribute or sell a pesticide. FIFRA expressly excludes application of pesticides by pest control companies from the definition of "distribute or sell." Therefore, EPA has no authority to take enforcement action against those home lawn care service companies that only apply pesticides, but do not also

distribute or sell pesticide products for application by others. To the extent that EPA lacks regulatory authority over advertising, however, the Federal Trade Commission's broad authority to regulate advertising provides a means to regulate and enforce against excessive or misleading claims made by home lawn care service companies. Accordingly, EPA has increased cooperation with FTC in acting against cases of inappropriate safety claims.

Since 1986, EPA and the Federal Trade Commission have met on several occasions to discuss each agency's concerns regarding pesticide advertisements. In light of our increasing concerns over lawn care advertising as well as general pesticide advertising, EPA and FTC met on February 22, 1990, and decided to implement formal procedures for referral of pesticide advertising cases between the two Agencies. A draft of the procedures for case referrals has been prepared, and is being circulated between the two agencies for review and comment.

As a practical matter, EPA has found that "self-policing" by the lawn care industry serves to identify many inappropriate safety claims. Each year, EPA receives numerous "tips and complaints" regarding potential pesticide advertising violations. The majority of these tips and complaints come from the competitors of the companies which have placed questionable advertisements. Since most FIFRA enforcement activities are delegated to the individual states under cooperative agreements, we refer those cases that fall within our enforcement authority to the states for enforcement

action. Our recent discussions with FTC will result in a formal process for the referral of cases to FTC where EPA does not have enforcement authority.

Currently, EPA believes that following up on tips and complaints establishes a reasonable enforcement presence in the regulated community, at least in relation to media advertising. The improved referral procedures being developed between FTC and EPA will also help to close an existing gap in our enforcement authority. An additional EPA program to review available advertising would be a poor use of EPA's limited enforcement resources. Such an effort would likely yield few additional referrals to the states or FTC.

The most elusive problem in this area, as a recent GAO investigation has shown, is that of inappropriate safety claims delivered orally by applicators to individual customers. No regulatory system can wholly prevent such abuses. We believe that education of consumers is the best way to ensure that such practices are recognized as inappropriate. Some of EPA's outreach efforts for both the general public and the lawn care industry, further described below, will help to increase awareness about inappropriate safety claims.

POSTING/CONSUMER NOTIFICATION

One of the most active regulatory issues relating to lawn care concerns requirements for posting of treated lawns, and related requirements for notifying residents near the treated areas of such

use, including information on the pesticides used. Several States have taken action in this area, and there are also county-level or municipal regulations in some areas.

Up to now, EPA has primarily acted as a technical information resource for states, but the Agency has not attempted to establish federal regulations on posting or notification. In general, EPA believes that posting and notification requirements pose some difficult policy issues, and it is not clear that a federal program is currently needed or would be the appropriate level of regulation.

Let me briefly point out some of the questions raised by posting requirements, which we believe deserve further analysis and input from interested parties. For example, there is the question of whether we should embark on requirements that involve treating homeowners like commercial applicators. Since most lawn care pesticides are applied by homeowners, should they be required to post their own lawns? If so, would it be realistic to enforce such requirements, or would they end up being generally ignored? There are other limitations on the effectiveness of posting; not all people at risk can read and signs are often vandalized or left in place long after the application. In spite of some practical reservations, we are actively looking at a range of alternati[illegible] for establishing some type of nation-wide posting and/or notification program, through either rulemaking, label changes, or

a policy guidance to the states, which would then develop and implement posting and notification programs.

The Agency supports the principle that consumers should have access to adequate and accurate information about pesticides used by commercial applicators around their homes. Thus, one approach we are considering is requiring lawn service companies to give their customers brochures identifying the pesticides used, and including objective information on toxicity and possible health effects, ways to minimize exposure, and ways to maintain a healthy, pest-free lawn with minimal pesticide use.

In short, we have not ruled out an EPA regulatory role on this issue. EPA has met and continues to meet with interested parties to explore approaches to the posting and notification issues. In that connection, it should be noted that the Professional Lawn Care Association of America has taken a constructive role in representing the lawn care industry position on these controversial issues. In general, the industry has taken a positive approach in support of posting and notification, although they would prefer to deal with state or federal requirements and not with regulations at the local level.

INTEGRATED PEST MANAGEMENT (IPM)

From the point of view of pollution prevention, one criticism of lawn care pesticides is that their use is excessive or altogether unnecessary, because cultivation practices and other means are available to achieve healthy lawns. EPA is committed to

increasing the use of Integrated Pest Management (IPM) for lawn care as an environmentally sound approach to pest management that takes advantage of all appropriate pest control options. For example, EPA has developed and made available several publications on IPM approaches to lawn and turf care that emphasize non-chemical cultivation practices to promote the growth of thick, healthy turf that crowds out most pests. Taking such an approach, a homeowner can choose from a number of alternatives which avoid chemical-intensive pest control practices. If horticultural practices alone are not successful, the homeowner or lawn care company is encouraged to resort to use of the least toxic pesticides.

In addition, EPA would like to work with state and local governments to help educate the general public, and the turf and lawn care industry in how to carry out successful IPM programs for turf grass and ornamental plants. This effort would ideally include demonstration projects, regional training workshops and related research to define the fate of turf pesticides in an urban setting.

OUTREACH EFFORTS

EPA is actively exploring ways to reach both the general public and the lawn care industry with appropriate information to help ensure that lawn care chemicals are used responsibly and safely. One group that is very important to reach is the state extension service which provides pest control advice to both the

industry and the public. This year we plan to complete and distribute to all the state extension services a training manual on ornamental turf pest control which EPA developed jointly with the U.S. Department of Agriculture, which will carry the message of responsible use, and consideration of non-chemical alternatives.

EPA is also considering the development of informational materials to increase public awareness of lawn care issues. An example of such a project was a consumer-oriented brochure on lawn care developed by EPA's Region 5 office in Chicago, which provides practical advice on questions to ask of lawn service companies, and how to recognize potentially hazardous application practices.

EPA's Region 10 office in Seattle is planning a multi-year project designed to involve state and local government agencies, as well as EPA, in public outreach and education efforts relating to pesticide and fertilizer use in urban and suburban areas. This project will include not only information and educational efforts, but also improved enforcement procedures for receiving and following up on complaints from the public. This program may serve as a model for cooperative federal/state/local outreach programs across the country.

EPA is also looking for ways to get the industry more involved in providing information to the public. We think there is positive potential for a joint EPA-industry outreach and education effort, similar to the work we've done with the agricultural pesticide industry to develop informational materials for farmers.

CONCLUSION

EPA understands that there is concern among some groups and some members of the public about the health and environmental risks of lawn care pesticides. Although we are not seeing evidence that lawn care is a use pattern posing an unusual degree of health or environmental risk, we can agree that there are issues here that require the Agency's careful consideration. Lawn care is a large and growing category of pesticide use, with significant potential for exposure of the general public. We at EPA recognize that there are gaps in our knowledge and ability to assess such exposure. There are also a number of fairly complex regulatory and policy issues involved in adopting local versus national approaches to regulation of a particular pesticide use pattern which is also associated with, but not limited to, a particular industry. As I have indicated in my statement, EPA is moving to address these concerns on four fronts:

(1) We are bringing in the up-to-date testing data needed to clarify risks posed by these chemicals, and improving our ability to assess exposure from this use pattern. We are doing this primarily through our re-registration program, but in the area of exposure assessment, we recognize current limitations and are looking at research and future protocol development that will lead to improved understanding of pesticide exposure in residential environments.

(2) EPA is cooperating with the Federal Trade Commission to implement formal procedures for referring cases of inappropriate advertising by lawn care service companies.

(3) EPA is continuing to explore with the states and other interested parties, the utility of issuing policy guidance or regulations regarding posting and/or consumer notification.

(4) EPA is pursuing pollution prevention opportunities through outreach efforts to provide training materials for professionals and information to encourage homeowners and the lawn care industry to use lawn care pesticides responsibly and in conjunction with other techniques to minimize reliance on pesticides, without waiting for proof of significant risks.

EPA is addressing the major issues relating to lawn care pesticides in a responsible fashion, within the context of our responsibilities for pesticide regulation under FIFRA and the priorities established by Congress. I will be happy to answer any questions you may have at this time.

STATEMENT

OF

SHELIA HOAR ZAHM, SC.D.

Occupational Studies Section
Environmental Epidemiology Branch
Division of Cancer Etiology
National Cancer Institute
National Institutes of Health
Department of Health and Human Services

BEFORE

THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT

U.S. SENATE

PUBLIC HEARING ON THE USE AND REGULATION OF LAWN CHEMICALS

MARCH 28, 1990

My name is Shelia Hoar Zahm. I am an epidemiologist in the Occupational Studies Section at the National Cancer Institute. The NCI has had a longstanding interest in environmental causes of cancer. Over the past decade, the Occupational Studies Section has conducted an increasingly sophisticated series of epidemiologic studies of pesticide exposures, which consists of insecticides and herbicides. These studies have included evaluation of geographic patterns of cancer mortality, investigations using death certificates, follow-up studies of pesticide applicators, and interview studies. Some of the exposures of interest in these studies are common to lawn care, the subject of today's hearing.

Early investigations noted high mortality rates for leukemia, lymphoma, and multiple myeloma among farmers in several states in the midwest. These findings led to studies designed to identify whether agricultural factors might be associated with these excesses. The two most relevant studies were conducted in the states of Kansas and Nebraska. These two studies had a case-control design. Cases of cancer and a control group, randomly selected persons without cancer from the general population, or, if deceased, their next-of-kin were interviewed concerning their past exposures. In the Kansas study, which was published in the Journal of the American Medical Association in 1986, we observed an excess risk of non-Hodgkin's lymphoma among herbicide users in comparison to non-farmers. Risk increased with frequency of use

to a six-fold increase in farmers who used herbicides 20 or more days per year. Use of the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) appeared to be responsible for the increase. Farmers who personally mixed or applied 2,4-D 20 or more days per year had an eight-fold increase in the incidence of non-Hodgkin's lymphoma. Risk was higher when the usual application method resulted in dermal, or skin, exposure; for example, farmers who usually used handheld or backpack sprayers had greater risk than farmers who usually used tractor-mounted sprayers. Use of protective equipment, such as rubber gloves, lowered risk to about the same level as that among farmers who never used 2,4-D on their farms. In addition, farmers who did not personally mix or apply 2,4-D but had someone else apply the chemical on their farms had roughly the same risk as nonusers.

The report of the Nebraska study, which has been submitted for peer-review to a scientific journal, shows results similar to the Kansas study. Farmers who used herbicides frequently had higher risk of non-Hodgkin's lymphoma than nonfarmers. Risk again increased with frequency of use, but to a lesser degree than found in Kansas, rising to a three-fold increase among farmers who mixed or applied 2,4-D 20 or more days per year. This study demonstrated again the importance of dermal exposure. Risk increased the longer the farmers usually wore the clothing used during pesticide spraying operations. If they usually changed clothing right away, the 2,4-D users had only a 10% increased

risk of non-Hodgkin's lymphoma. If they usually changed at the end of the work day, they had a 50% increased risk. If they did not switch to clean work clothes until the following day or later, they had an almost five times, or 500%, increased risk of non-Hodgkin's lymphoma. Use of organophosphate insecticides also appeared to increase the risk of non-Hodgkin's lymphoma in this study. Many of the farmers had both exposures, making it difficult to completely disentangle their effects; however, detailed analyses suggested that 2,4-D and organophosphates independently increased risk of non-Hodgkin's lymphoma.

In neither study was duration, that is years of use, related to risk. Average annual days of use appeared to be the strongest determinant of risk.

In the two studies, we did not evaluate risks to children or incidental exposures to farm wives through such activities as laundering contaminated work clothes.

We asked all subjects, including nonfarmers, about the use of pesticides around their homes, lawns, and gardens. These data might be of poorer quality than the data from farmers because of nonfarmers' lack of familiarity with the chemicals. In Kansas, use of lawn chemicals did not appear related to the selected cancers under study. The analogous data in the Nebraska study have not been fully analyzed yet.

Animal studies of 2,4-D are equivocal. A recent two-year bioassay of 2,4-D in mice and rats resulted in a statistically significant increase in the incidence of brain tumors in male rats. However, since there was no similar increase in female rats, there is some question as to whether a cause-effect relationship has been proven. The mechanism for a possible carcinogenic effect of 2,4-D is not known. 2,4-D does not appear to cause changes in cell genetic material, DNA, like many carcinogens do. It is not known to be contaminated with 2,3,7,8-TCDD, the extremely toxic dioxin isomer that is thought to be carcinogenic and contaminates some other phenoxyacetic acid herbicides. It has been suggested that phenoxy herbicides may affect immune response which is related to development of non-Hodgkin's lymphoma. Phenoxys also affect certain enzyme systems causing peroxisome proliferation which is the mechanism for some nongenotoxic carcinogens, that is, carcinogens that do not act by altering cell DNA. Various laboratory studies are being initiated at the National Cancer Institute to further investigate these questions.

There are several other relevant epidemiologic studies that are underway at NCI. Two investigations directly related to today's hearing are a study of employees of a national lawn care service company and a study of cancer among dogs in relation to their owners' use of pesticides on their lawns. The study of the lawn

care service company will evaluate mortality among approximately 30,000 applicators. The applicators can be exposed to pesticides on a daily basis throughout the growing season which ranges from 90 to 120 days per year. The existence of records on the type of pesticides, formulations, and treatment protocols for each year and geographic location makes this population exceptionally valuable for study. The records eliminate the need to rely upon subject recall of exposure. Because the company began in 1969 and the applicators are likely to be young with short work histories, the NCI is planning both a prospective and retrospective study. Currently we are computerizing the worker occupational records and the company pesticide treatment protocols. We estimate that the retrospective component of the study will take at least two years to complete.

An epidemiologic study of cancer among dogs was initiated because of case reports of lymphoma in dogs whose owners used pesticides on their lawns. Since dogs may come into contact with lawn chemicals while in the yard this seemed to offer an opportunity to evaluate cancer risks from this type of exposure. Results are not yet available, but analyses are underway.

The NCI has several other investigations in progress. County employees whose function is to eradicate difficult to control weeds are another occupational cohort frequently exposed to herbicides that NCI is studying. These men also have daily

exposure to herbicides (primarily 2,4-D) during the growing season. The county offices where these workers have been employed have remarkably detailed records on applications, amounts, formulations, area sprayed, and other information. The study is being conducted in Kansas but may be expanded to included other midwestern states. Currently the study population is small (approximately 2,000) but the maximum latent period, the period betweenfirst exposure and the development of cancer, could be as long as 30 years. In states with cancer registries, such as Kansas, cancer incidence as well as mortality can be studied.

A third case-control study of agricultural factors and selected cancers, similar to the Kansas and Nebraska studies, was conducted in Iowa and Minnesota. The data are currently under analysis.

Also in progress is a methodologic study to evaluate and improve exposure assessment in epidemiologic studies of agricultural exposures.

SUMMARY

In summary, two NCI epidemiologic studies have shown an increased risk of non-Hodgkin's lymphoma among frequent users of agricultural herbicides. The herbicide which appeared to be

responsible for the excess risks was 2,4-D, an herbicide commonly used in lawn care. The risk appeared limited to mixer-applicators, although risk to family members was not evaluated. The studies suggest that reduction or elimination of dermal exposure can decrease risk to that of nonusers. The mechanism for the possible carcinogenic effect is not known, but is under laboratory investigation at NCI. Several related projects, including a national study of lawn care service applicators, other studies with detailed exposure data, and additional analyses of insecticide exposure in the completed studies, are underway.

PUBLIC CITIZEN

Buyers Up □ Congress Watch □ Critical Mass □ Health Research Group □ Litigation Group

TESTIMONY

OF

ANNE W. BLOOM

ON BEHALF OF

PUBLIC CITIZEN

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,

RESEARCH AND DEVELOPMENT,

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

U.S. SENATE

CONCERNING

NON-AGRICULTURAL USES OF PESTICIDES

MARCH 28, 1990

215 Pennsylvania Ave. SE □ Washington, DC 20003 □ (202) 546-4996

Good morning, Mr. Chairman and Members of the Subcommittee. I am Anne Bloom, a staff attorney with Public Citizen's Congress Watch.[1]

Public Citizen commends the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development for conducting this hearing on the use, regulation and potential health risks of over-the-counter and commercially applied chemicals on lawns, gardens and public spaces. These hearings are a crucial step toward providing better health and safety protection to American citizens. We appreciate the opportunity to present our views on this important subject.

I. Non-agriculture pesticides are used widely in urban environments.

Although public attention has focused on the health risks stemming from agricultural uses of pesticides, urban and suburban America applies pesticides at a greater volume per acre than rural users. Pesticides are used widely in homes, backyard gardens, stores, schools, restaurants, hotels, office buildings, hospitals, theaters, golf courses, and highway rights-of-way. A National Academy of Sciences study found that homeowners use from

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[1] Public Citizen is a national, non-profit consumer and environmental advocacy organization founded by Ralph Nader in 1971. We have been interested in the issue of urban pesticide use for many years. Public Citizen's Congress Watch works for reform of federal pesticide laws and policies. Additionally, the Public Citizen Litigation Group represents two municipalities (Milford, Michigan and Mayfield Village, Ohio) that have enacted notification ordinances for lawn care pesticides.

5.3 to 10.6 pounds of pesticides per acre per year, many times more than the corn or soybean farmer, for example.

Little is known about the health and environmental impacts of this widespread use. Most urban use pesticides have not been tested for their entire range of health effects, and are not likely to be completely tested for many years. Others have shown the potential to cause cancer, birth defects and other chronic effects. In addition, run-off from urban pesticide use may contaminate water supplies.

II. Urban Pesticide Use Poses Special Risks to Children.

While the dangers associated with many pesticides are not entirely known, children are particularly at risk of developing health problems from exposure to pesticides. This is true for a number of reasons. First, children are more likely to be exposed to higher doses of toxic substances. In general, children require more food and oxygen than adults because they are still growing and expend more energy per pound than the average adult. Thus, the amount of toxins they breathe from the air per pound of their body weight, for example, is necessarily much higher. Children are also more likely, by virtue of their life-style and playing habits, to come in direct contact with pesticide residues. In one study, researchers at the University of Southern California found that children living in homes where household and garden pesticides were used had up to a seven-fold

greater chance of developing childhood leukemia.[2]

Secondly, since children are in a growing state, more of their cells are rapidly dividing, compared to adults whose cells are generally in a resting state. Toxins, especially carcinogens, are particularly damaging to rapidly dividing cells making children unusually susceptible to developing health problems from exposure to such agents.

In addition, environmental toxins are more harmful to children because their organ systems are immature and still developing. Finally, children who are asthmatic or suffer from other allergies, are even more susceptible than other children to experiencing health problems from pesticide exposure. According to the National Academy of Sciences, as many as 15 percent of the population suffers from an increased sensitivity to various chemical exposures, including pesticides.[3]

Despite the enhanced risks to children, pesticides continue to be used in two areas where children are particularly likely to be exposed: in schools and on lawns. Public Citizen has published two studies specifically addressing the uses of pesticides in schools and in the commercial lawn care industry. Contaminated Classrooms, released in September of 1988, examined

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[2] Ruth A. Lowengart, et al, "Childhood Leukemia and Parents' Occupational and Home Exposures," Journal of National Cancer Institute, July 1987, p. 39-45.

[3] Davis, Devra Lee, "Evaluating Sensory and Hyperactivity Reaction From Exposures to Inhaled Pollutants," Meeting of the National Academy of Sciences' Board on Environmental Studies and Toxicology, July 27-28, 1987.

pesticide use in Washington, D.C. area schools. We anticipate replicating this study in ten cities across the nation in the coming year. A year ago (April, 1989), we completed a two-part study on the commercial lawn care industry, Keep Off The Grass. Both projects impressed upon us the wide and frequently indiscriminate use of potentially health-threatening pesticides in urban environments.

III. The Use of Pesticides in Schools Is Both Pervasive and Unnecessary.

The nation's school systems have traditionally relied on the chemical treatment of pest problems as a matter of policy. As a result, incidents of allergic reactions and pesticide-related illnesses have been reported in school systems around the country.

Schools face a variety of pest problems, ranging from overgrown bush and weeds outdoors to cockroaches in cafeterias and rodents in waste storage facilities. In response, many schools overuse pesticides by applying them according to pre-established schedules, regardless of the levels of pests actually present in the school environment. These same schools also have a tendency to spray when pest populations have reached crisis proportions. This type of crisis-management response leads to pesticide overuse as well, and inevitably results in using more toxic materials than would have been required had less toxic preventive measures been taken.

Contaminated Classrooms found that a number of the chemicals applied in Arlington County and D.C. public schools raised serious health and safety concerns. Insecticides used included diazinon -- which has shown the potential to cause birth defects; chlorpyrifos -- which is associated with learning disabilities; and Bendiocarb -- which has been linked to hyperactivity and vision problems.

In contrast, Montgomery County Schools received high grades for its successful implementation of pest prevention practices and the use of least toxic pest control treatments. Montgomery County applicators receive a minimum of 60 hours training each year, minimizing the risk of accidental poisonings. Additionally, school principals receive detailed information regarding all chemical treatments made in their schools and parents with allergy-suffering children are notified in advance of all pesticide applications.

The differences between the practices in the Arlington County and D.C. public schools as compared to Montgomery County demonstrate the overuse of pesticides in school environments. The experience in Montgomery County also shows the potential for effective pest management without heavy reliance on chemical treatments.

There is much that the Environmental Protection Agency (EPA) could do to encourage Integrated Pest Management (IPM), a system which relies on least toxic methods of pest control, in schools. To start, EPA should issue a letter to school officials about

potential pesticide hazards in schools and encourage them to pursue safer pest control alternatives. EPA could also provide schools with informational materials, such as fact sheets and videos, on alternatives and prevention strategies. The agency might sponsor a pilot IPM program in each state and send representatives to meetings of school administrators to familiarize them with the principles of IPM. Finally, EPA should develop and distribute a booklet profiling successful IPM programs in schools.

IV. The Public Needs Better Information on the Health Risks Associated with Lawn Care Pesticides.

In 1987, over 7 million American households turned to professional lawn care companies to create the picture-perfect lawn. The commercial lawn care industry relies heavily upon the use of potentially health-threatening pesticides.

Part I of Public Citizen's Keep Off The Grass reviewed the health effects of pesticides most commonly used by the commercial lawn care industry. Of the forty pesticides that comprise over 95 percent of the chemicals used by commercial lawn care firms, twelve are suspected human carcinogens, twenty-one have been shown to cause other long-term health effects in lab animals or humans such as birth defects, gene mutations, dermatitis, or liver, kidney or nervous system damage and twenty have been shown to cause short-term damage to the central nervous systems of humans, resulting in flu-like symptoms.

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Although most of these pesticides are availablee for individual home use, their use by commercial companies presents special hazards. Lawn care companies spray more frequently, often apply pesticides before a specific problem is identified and@ use chemical mixtures which may pose greater health hazards in combination. Furthermore, when a company is hired, there is little chance that the customer will see the pesticide label or be alerted to the potential health risks. Finally, the lawn care industry is growing at an annual rate exceeding 15 percent per year, while homeowner application of pesticides has remained relatively constant.[4]

Part II of Public Citizen's Keep Off The Grass surveyed pest control officials in the 50 states and the District of Columbia about their rules governing the commercial application of pesticides in residential areas. The results were quite disturbing. Most states do not require every commercial pesticide applicator to be trained, tested and licensed, which can reduce the risk of accidental poisoning. Moreover, citizens in forty-one states and the District of Columbia are not provided any legal right to be notified before or after pesticides are sprayed in their neighborhoods by commercial lawn care companies. Finally, forty-seven states and the District do not provide consumers with government information regarding the potential hazards of lawn care pesticides.

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[4] Edward Brandt, Economics Analysis Branch, Office of Pesticides and Toxic Substances, U.S. EPA, memo to Thomas Adamczyk, Deputy Branch Chief, October 13, 1987.

The problem of inadequate consumer information is exacerbated by misleading advertising. The U.S. General Accounting Office (GAO), in a report published in April 1986, found that not only is the public not told about the uncertainties regarding health risks, but that the pesticide industry sometimes makes misleading safety claims about their products. Lawn care companies commonly advertise the "safety" of their services and products. The GAO report noted that these false safety claims may convince some consumers that caution is unnecessary.

In light of the need for information and the existence of wide-spread misinformation, it is imperative that government agencies step in to inform consumers of the real and potential dangers associated with pesticides. EPA could do much more to ensure that consumers receive adequate and truthful information. Requiring lawn care companies to provide their customers with EPA-developed fact sheets on the pertinent known and potential, short and long-term health effects of commonly used lawn care chemicals, would be an excellent first step. The Agency should also form a special task force with the Federal Trade Commission, as recommended by GAO in their 1986 report, to monitor and take action against false or misleading advertising by the commercial lawn care industry.

Some local governments have stepped in to fill the information void, often in response to the needs of chemically sensitive residents. Public Citizen is currently representing

two municipalities that have enacted notification ordinances for lawn care pesticides, which are being challenged on federal preemption grounds. In court challenges to local ordinances, the pesticide industry is contending that only the federal and state governments, and not local governments, have the authority to regulate pesticides, including public notification requirements. Nevertheless, when New York adopted a statewide public notification law, the lawn care sprayers were back in court contending that it was a labeling law, which only the federal government can adopt.

Local notification laws may simply require lawn care sprayers to post a sign at sites where pesticides are applied. The signs generally state "Warning: Pesticides have been sprayed. Children and animals keep off." The sign must provide the date of application and must be kept in place for a set period of time, such as 48 or 72 hours. Some of the ordinances also require advance notification of spraying to chemically sensitive individuals either through individualized notice or publication in the newspaper. The individuals covered by this requirement are sometimes limited to neighbors, but may extend to any medically certified individuals whose names appear on a list maintained by the city. In addition, some laws require that commercial sprayers make certain disclosures to their customers on the nature and dangers of the chemicals used. It is difficult to understand why lawn care professionals would object to providing consumers with this basic health and safety

information.

V. The Federal Response to the Health Hazards of Pesticides is Inadequate

Some consumers may feel a false sense of security by a company's claim that all the pesticides they use are approved by EPA, under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). But registration under FIFRA is not based on a determination of safety.

FIFRA appears to require a risk-benefit balancing. The risk/benefit balancing scheme means that pesticides are registered because their benefits are believed to outweigh their risks, and not because they have been found to pose no safety hazard to the public.

Incomplete health and safety information complicates EPA's decision-making under FIFRA. Before 1972, EPA was not required to consider a pesticide's long-term health effects. Many pesticides that have been widely used for decades are capable of causing birth defects, gene mutations, sterility, cancer and other adverse health repercussions.

EPA also knows little about the extent of the public's exposure to lawn care and most urban use pesticides. A pesticide's potential for causing long-term health damage depends on its toxicity and the extent to which people come in contact with it. EPA's data on both aspects are dismally deficient. While the agency acknowledges that exposure data, such as

measurements of the extent to which pesticides are inhaled or come in contact with the skin, are necessary for making accurate and reliable risk assessments[5], EPA does not regularly require manufacturers to submit exposure information for many urban use pesticides.

Furthermore, the Agency does not require tests for chronic health effects which might result from the interaction between different mixtures of pesticides and their ingredients. Even at low levels the health effects of one chemical may be multiplied by the presence of other compounds in the environment. The potential threat from exposure to chemical combinations deserves much more attention.

Finally, while pesticides are regulated according to their "active" ingredients, they also contain "inert" ingredients about which EPA has very little information. Inert ingredients are mixed in to dilute, disperse, propel or stabilize the active ingredient and often make up most of a pesticide product. EPA should fully test inert ingredients and require that they be listed by name on the pesticide label.

VI. Recommendations For Congressional Action.

The public was outraged when they learned that residues of the potentially carcinogenic growth regulator Alar contaminated our food. Would the same public continue to apply weed-killers

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[5] U.S. General Accounting Office, Nonagricultural Pesticides, April 1986, p. 22 (according to EPA's National Pesticides Monitoring Plan of July 1985).

to their lawns if they knew that they contained 2,4 D, a chemical for which there is human evidence of carcinogenicity? The crime is that consumers do not know and they are frustrated in their attempts to obtain this information.

We make the following recommendations for change:

* Pesticide manufacturers should be required to submit the data necessary for the agency to adequately assess the extent to which the public is exposed to urban-use pesticides.

* The risk/benefit analysis currently used by EPA in registering pesticides should be replaced with a health-based standard. EPA should not be permitted to find that the benefits of purely cosmetic uses (such as, for lawn care) of potentially carcinogenic pesticides outweigh their risks, as they currently do. The Agency should also restrict or ban those pesticides that may cause nervous system damage.

* Advance notification should be provided to chemically sensitive residents and the posting of warning signs should be required where spraying has occurred.

* Effective alternatives should be encouraged. A broad range of effective, non-chemical pest control methods offer safer, effective alternatives. Following our release of Contaminated Classrooms, EPA agreed that they could provide better guidance on reducing reliance on chemical pest control in schools. They have organized a working group to develop a general guidance document on pesticide management principles for use by school officials. We are optimistic about the potential

for this group and urge this subcommittee to oversee its efforts and encourage EPA to take additional steps to promote IPM in schools and other urban environments. Also, our report, Contaminated Classrooms, is available to Senators, who may wish to transmit this information to their home school districts.

* Additional funds should be appropriated for programs that promote the use of Integrated Pest Management (IPM). While EPA agrees with the goal of promoting IPM, additional funds may be necessary to ensure that actual steps are taken toward reducing the use of hazardous pesticides in urban environments.

In summary, the health and environmental risks posed by the use of pesticides in urban environments are both unnecessary and preventable. The federal government has a greater role to play in encouraging least-toxic pest control methods and promoting the principles of Integrated Pest Management. We applaud Chairman Reid and Senator Lieberman and their staffs for their extraordinary efforts in arranging this important hearing. We strongly urge this subcommittee's continued interest and oversight of pesticide issues.

STATEMENT OF JAY FELDMAN
NATIONAL COORDINATOR, NATIONAL COALITION
AGAINST THE MISUSE OF PESTICIDES
BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES,
ENVIRONMENTAL OVERSIGHT RESEARCH AND DEVELOPMENT
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
US SENATE
MARCH 28, 1990

Mr. Chairman and members of the Subcommittee. I am Jay Feldman, National Coordinator of the National Coalition Against the Misuse of Pesticides (NCAMP), a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to improve protections from pesticides and promote alternative pest management strategies which reduce or eliminate a reliance on pesticides. Our membership spans the 50 states and groups around the world.

We are facing a national pesticide exposure crisis, the dimensions of which are not adequately calculated by the U.S. Environmental Protection (EPA). At the same time, people are getting sick from non-agricultural pesticide exposure in their homes, offices, schools, and work places, through direct exposure, drift, volatilization, or by way of residues on treated landscapes. According to EPA, "It is estimated that lawn pesticide sales in the U.S. approach $500 million annually and result in 20 to 30 million pounds of active ingredients applied."[1] EPA says there are 232 active ingredients in products which have ornamental lawn uses and notes that commercial chemical lawn care companies have experienced a rapid growth since the late 1970's, with a 15% annual growth rate in the early 1980's to become a $2.8 billion industry. Approximately 230 million pounds of pesticides are used for non-agricultural purposes. The National Academy of Sciences report, *Urban Pest Management*, cites data from three cities surveyed in 1971 (years before the tremendous growth in lawn pesticide sales) where pesticides were applied at a rate of 5.3-10.6 pounds per acre, "suggesting that suburban lawns and gardens

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[1]U.S. Environmental Protection Agency, *Lawn Pesticide Policy Group Briefing Paper*, Internal Document, January, 1988.

NOTE: Attachments to this statement have been retained in committee files.

received heavier pesticide applications than most other land areas in the United States," according to the report.[2]

The growth of the chemical lawn care industry is a troubling development, in light of public exposure to hazardous pesticides that cause cancer, toxic sensitization, neurological problems and a range of short term effects such as dizziness, headaches, rashes and mental disorientation. In addition, most of the pesticides in use have not been fully tested for the range of possible adverse health effects. This is true for both the active and inert ingredients.

According to its own internal memoranda, EPA lacks the information necessary on public exposure to ensure adequate protection. The Agency has virtually no data on two major routes of public exposure to lawn pesticides, through inhalation and skin absorption. EPA's internal documents reveal, "In order to provide meaningful estimates for homeowners and other individuals who may be exposed to pesticides via contact with treated home lawns, the Exposure Assessment Branch [of EPA] would need dislodgeable residue data."[3]

The U.S. General Accounting Office (GAO), in a 1986 review of pesticides, entitled *Nonagricultural Pesticides: Risks and Regulation*, found that "The general public receives limited and misleading information on pesticide hazards."[4] Meanwhile, pesticides curtailed for use in nonresidential settings continue to be used around homes and gardens. For example, a commonly used insecticide called diazinon (Spectracide™), banned by EPA for use on golf courses and sod farms because it had caused over 100 documented bird kills, is still available in garden stores and is commonly used by the chemical lawn care industry. While EPA offers virtually no public health warning to consumers who use or are exposed to malathion, widely used in lawn and landscape care, the Agency does warn people to "Wash immediately if automobiles are accidentally sprayed."

As evidence of public health and environmental effects associated with lawn and landscape pesticides mount, EPA claims that it regulates these toxic materials in compliance with a risk-benefit standard in the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). In fact, in spite of the increasingly well-known risks, EPA often justifies the widespread use of poisons in pest control by referring to the "benefits" of their use. The biggest difference in the

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[2]National Academy of Sciences, *Urban Pest Management*, 1971.

[3]U.S. Environmental Protection Agency, January, 1988.

[4]U.S. General Accounting Office (GAO), *Nonagricultural Pesticides: Risks and Regulation*, Washington, D.C., GAO/RCED-86-97.

way that pesticides, as opposed to other toxic substances, are regulated is that it is assumed that there are benefits to releasing pesticides in the environment.[5]

Under FIFRA, EPA may register a pesticide after determining that it "will not generally cause unreasonable adverse effects on the environment," and may cancel the registration if it does cause unreasonable effects on the environment. FIFRA defines "unreasonable adverse effects on the environment" to mean "any unreasonable risk to man or the environment, taking into account the economic, social and environmental costs and benefits of the use of any pesticide."[6] Those who use a pesticide have a right to expect that they will receive a benefit commensurate with the risk they take, and to which they expose their families, neighbors, and environment.

While EPA has attempted to apply a partial benefits analysis to pesticides on the market which have exceeded risk criteria established by the Agency, no analysis is conducted "up front," when the pesticide is registered. The Agency does not even pretend to do a benefit analysis. Officials assume that if there were no benefits to using the pesticide, then there would be no market. Therefore, barring evidence of extraordinary risks, EPA assumes that benefits outweigh the risks in the initial registration decision. At the "tail end," EPA does an analysis of the "economic impact of cancellation." EPA determines how the pesticide is used, how many acres are treated, and what is the most likely alternative to be used if the pesticide under consideration is cancelled. The most likely alternative in EPA's analysis is generally the most commonly used alternative pesticide.

EPA has failed the public's confidence. When it comes to non-agricultural pesticides, particularly those used for lawn and landscape care, EPA has failed to comply with the most basic of benefits reviews. Does a green lawn justify exposure to carcinogens, neurotoxins and chemicals that cause birth defects, genetic damage, and toxic sensitization? We do not think so. Has EPA considered the range of alternative methods of lawn and landscape care available, which does not rely on toxic materials? No it has not. Is the Agency out of compliance with the basic requirements of the law? Yes, it is.

The threat to public health from the use of lawn care pesticides is well documented in laboratory studies and victim reports. The cosmetic benefits do not outweigh the potential for additional, repetitive, and significant exposure to

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[5]T. Shistar, National Coalition Against the Misuse of Pesticides, *The Benefit Side of Risk-Benefit Analysis*, 1990.

[6]Federal Insecticide, Fungicide and Rodenticide Act, as amended, 1972.

these toxins. There are problems based on what is known as well as what is not known. Lack of adequate data and public awareness of the full health and environmental consequences further argues for a change in use patterns and regulation of lawn chemicals.

I. The Cosmetic Benefits of Lawn Care Pesticides Do Not Justify Additional Public Exposure To Hazardous Chemicals.

As with most pesticides, use of lawn care pesticides poses immediate and long-term health risks to the public. While some argue that risks from pesticide use in agriculture and public health should be acceptable, based on the value of the food supply and protection from disease, increasingly the public is calling into question the use of pesticides for cosmetic results alone. For those of use who believe our national pest management goals in agriculture and lawn care can be achieved without pesticides, we would argue in both forums that the value or benefits of pesticides is overstated.[7] The growth of the lawn care industry is a troubling development as it introduces additional exposure to hazardous chemicals that can cause short-term effects such as dizziness, headaches, rashes, and mental disorientation as well as cancer, neurological problems, reproductive effects, birth defects, and toxic sensitization.

II. Commonly Used Lawn Chemicals Are Known To Cause Cancer, Birth Defects, Liver and Kidney Damage, Reproductive Effects, and Skin Problems.

Of the 232 active ingredients registered for use on lawns, EPA estimates that 33 of these account for 95% of the use.[8] Laboratory studies and/or reports on exposed humans indicate that those 33 include 9 with evidence of carcinogenicity, 10 with evidence of the potential to cause birth defects, 3 that have exhibited adverse reproductive effects, 9 shown to be damaging to the liver and/or kidneys, and 20 known to adversely effect the nervous system.

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[7]W. Schultz, *The Chemical-Free Lawn*, Rodale Press, 1989; National Coalition Against the Misuse of Pesticides, *Least Toxic Control of Lawn Pests: An NCAMP Pest Control Fact Sheet*, 1989; National Research Council, National Academy of Sciences, *Alternative Agriculture*, 1989.

[8]U.S.Environmental Protection Agency, *Lawn Pesticide Policy Group Briefing Paper*, Internal Document, January, 1988.

The majority, 29, are known to cause skin disease or irritation. These represent documented toxic effects.[9]

III. Studies Of Human Populations Offer Further Evidence Of The Link Between Pesticide Exposure And Cancer

A. Elevated Cancer Rates Occur Among Occupationally Exposed Groups

In addition to the laboratory tests required in support of pesticide registration, evidence of the hazards posed by pesticide chemicals can be seen in human epidemiological studies. These unfortunate observations indicate that human exposure to pesticides is partly responsible for cancer rates which have been on the rise since 1950.[10]

B. Children, A Particularly Vulnerable Group, May Be At Serious Risk From Home and Lawn Pesticide Exposures

Often the occupational setting offers the best opportunity to associate specific exposures with particular outcomes. Numerous cancer mortality and case-control studies indicate that farmers, pesticide applicators, and pesticide plant workers suffer elevated rates of some cancer types, particularly lip, stomach, leukemia, lymphatic, multiple myeloma, and prostate.[11] Most studies have been unable to associate specific types of pesticides with specific types of disease. However, exposure to phenoxy herbicides (2,4-D, mecoprop, MCPA, all which are major lawn pesticides) have been linked with increased risk of specific cancers of the lymphatic and blood systems. For example, a 1986 National Cancer Institute study of Kansas farmers reports that those exposed to 2,4-D for 20 or more days per year were six times more likely to develop

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[9]M. Moses, "Pesticide-Related Health Problems and Farmworkers," AAOHN Journal, 37(3): 115-130, 1989; U.S. Environmental Protection Agency Health Advisory Summaries, Office of Water, January, 1989; L. Weiss, *Keep Off The Grass*, Public Citizen's Congress Watch, April, 1989; M. O'Malley, "Skin Disease in Agricultural Workers," Pesticides and Health Conference, Yakima WA, August, 1989; *Federal Register*, "Regulation of Pesticides in Food: Addressing the Delaney Paradox Policy Statement," October 19, 1988.

[10]S.S. Epstein, M.D., "Losing the War Against Cancer," *The Ecologist*, 17(2): 91-99, 1987.

[11]Statement of Leon F. Burmeister, Professor, Department of Preventive Medicine and Environmental Health, University of Iowa, before the Subcommittee on Department Operations, Research, and Foreign Agriculture, Committee on Agriculture, U.S. House of Representatives, May 21, 1985.

non-Hodgkins lymphoma than nonfarmers. Even higher risk was found for farmers who frequently mixed or applied the herbicide themselves.[12] Women workers exposed to atrazine, another major lawn herbicide, were nearly three times more likely to suffer ovarian cancer according to a recently published study by Donna et al, 1989.[13]

Children rarely fall prey to cancer, yet there are few more tragic events than cancer striking a young person. Between 1950 and 1986 (the last year for which good data are available), the incidence of childhood cancer increased 21.5%.[14] Epidemiological studies of childhood cancer lend very disturbing evidence that exposure to pesticides at home may be an important risk factor. Childhood tumors and blood disorders have been linked with substantial prenatal or environmental exposure to specific insecticides by Infante, et al.[15] while Gold, et al. report that children with brain cancer are more likely than normal controls to be exposed to insecticides in the home.[16] A study sponsored by the National Cancer Institute indicates that household and garden pesticide use can increase the risk of childhood leukemia as much as seven-fold.[17] The most common exposure of 15 children whom reported to a blood dyscrasia clinic in California stricken with aplastic anemia or leukemia, was found to be exposure to household use pesticides, particularly DDVP and propoxur, a major residential use pesticide.[18]

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[12]S.K. Hoar, et al., "Agricultural Herbicide Use and Risk of Lymphoma and Soft-Tissue Sarcoma," Journal of the American Medical Association, 256(9): 1141-1147, 1986.

[13]A. Donna, et al., "Triazine Herbicides and Ovarian Epithelial Neoplasms," *Scandinavian Journal of Work and Environmental Health*, 15: 47-53, 1989.

[14]R. Bazell, "Cancer Warp," *The New Republic*, December 12, 1989.

[15]P.F. Infante, et al., "Blood Dyscrasias and Childhood Tumors and Exposure to Chlordane and heptachlor," *Scandinavian Journal of Work and Environmental Health*, 4: 137-150, 1975.

[16]E. Gold, et al., "Risk Factors for Brain Tumors in Children," *American Journal of Epidemiology*, 109(3): 30-9-319, 1979.

[17]R. Lowengart, et al., "Childhood Leukemia and Parents' occupational and Home Exposures," Journal of the National Cancer Institute, 79: 39, 1987.

[18]J.D. Reeves, "Household Insecticide-Associated Blood Dyscrasias in Children," (letter), *American Journal of Pediatric Hematology/Oncology*, 4: 438-439, 1982.

IV. Gaps In The Toxicity Data Base Of Lawn Pesticides Makes It Impossible To Assess The Full Extent Of The Hazard They Pose.

The limited toxicity and epidemiological information which exists makes it clear that many of these chemicals pose a real and unnecessary hazard. Yet there is a great deal of information which we lack. Gaps in the toxicity data of the vast majority of pesticides in use today, which have been cited by numerous reports and studies by the General Accounting Office (GAO)[19] and National Academy of Sciences (NAS),[20] make it impossible to fully assess the long-term health hazard that pesticides pose. Since the overhaul of FIFRA in 1972 and EPA's mandate to bring pesticides into full compliance with modern safety standards, EPA has been able to collect full health and safety data on only 10 of the 600 active pesticides ingredients to date.[21] Also, as lawn care chemicals fall under the category of terrestrial nonfood use pesticides, the toxicity data requirements are less rigorous. The battery of chronic toxicity data including the potential to cause cancer, birth defects, and reproductive effects are not required of lawn pesticides if they do not also have food or feed uses. While 26 of the 33 most commonly used lawn pesticides do also have food or feed uses, as mentioned above this does not guarantee the existence of complete toxicity information. Finally, EPA does not require testing for immune system effects or chronic neurotoxicity, despite increasing scientific concern and evidence that pesticides adversely affect the immune and nervous system.[22] Currently, EPA's required neurotoxicity testing is limited to an acute delayed paralytic effect caused by some members of a distinct group of pesticides.

V. The Opportunities For Exposure to Lawn Pesticides Are Numerous and Significant While Public Awareness of Hazard Is Minimal.

Clearly the severity of health risks posed by lawn care chemicals underscores the need to reduce or better still, to eliminate exposure. The

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[19]U.S. General Accounting Office, *Pesticides: EPA's Formidable Task to Assess and Regulate Their Risks*, RCED-86-125, 1986; U.S. General Accounting Office, *Nonagricultural Pesticides: Risks and Regulation*, RCED-86-98, 1986.

[20]National Research Council, National Academy of Sciences, *Toxicity Testing: Strategies to Determine Needs and Priorities*, 1984.

[21]Chuck Kent, Chief of Reregistration Division, Office of Pesticide Programs, U.S. EPA, telephone conversation, March 24, 1989, as cited in Laura Weiss' *Keep Off The Grass*, Public Citizen's Congress Watch, April, 1989.

[22]C.D. Klaassen, et al. (eds), "Toxic Effects of Pesticides," *Cassarett and Doull's Toxicology*, Macmillan Publishing Company, New York, NY, 1986.

opportunities for exposure to lawn pesticides are numerous, ranging from their application on golf courses, playgrounds or athletic fields to parks, rights-of-way, or indoors in public buildings.

While residential usage data is limited, a 1976-77 EPA survey found that approximately 40% of households use pesticides in their yards[23] and the National Academy of Sciences notes that suburban lawns and garden receive far heavier applications per acre than most other land areas in the U.S. including agricultural acres.[24] It is important to recognize that households use and store pesticide products unaware of the health implications, usually assuming that registration with EPA is equated with "safety" or "approval". The public is not generally informed on the gaps that exist in EPA's health and safety files or that pesticides are regulated based on a risk/benefit statute. Misleading advertising by those who sell pesticides further fuels these misconceptions.

Most of the information available to the user is in the form of the label. Labels are intended to advise on appropriate application methods and may contain precautionary information by way of recommending protective clothing such as long shirtsleeves and gloves or washing after use. Health information is usually limited to warnings about acute hazard based on the immediate effects that result from a large exposure to the active ingredient. No information on chronic effects is included, nor even an indication of the EPA carcinogenicity rating. Furthermore, it is important to note that the "inert" ingredients which are not required to be listed by name on a pesticide label, may be just as, if not more, hazardous than the pesticide's active ingredient(s). Toxicity information about these trade secret chemicals is not available to users. Moreover, EPA's recently released study of exposure to pesticides in the home notes that residents often do not read the labels of pesticide products before using them.[25] Of course, even if labels are read, they do not generally provide information on the potential long-term effects from low level exposure over a long period of time. And if a resident employs a lawn care company, there is little chance the customer will see the pesticide label or be alerted to the potential health risks.

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[23]U.S. Environmental Protection Agency, *National Household Pesticide Usage Study*, Epidemiologic Studies Program, Health Effects Branch, Hazard Evaluation Division, 1979.

[24]National Research Council, National Academy of Sciences, *Urban Pest Management*, 1980.

[25]U.S. Environmental Protection Agency, *Nonoccupational Pesticide Exposure Study* (NOPES), EPA/600/3-90/003, 1990.

VI. The Use Of Lawn Care Companies Presents Special Problems.

Employment of lawn care companies presents additional special hazards in that they spray more frequently, often preventively (and, therefore, possibly unnecessarily) and use chemical mixtures which may pose greater health hazards in combination. EPA does not require tests for the effects which may result from the interaction between different mixtures of pesticides, yet consumers of a lawn care company's service usually are buying treatments consisting of a chemical brew. Also, while an individual household may only be treated six times per season, exposure from neighboring applications multiplies the exposure. One woman reported 40 pesticide applications in her immediate area in a two day period, by just one company.

VII. EPA Is Unable To Adequately Assess The Public's Exposure to Lawn Pesticides.

While it is the responsibility of the EPA to assess the risks associated with each pesticide's use in order to ensure adequate public protection, their internal memoranda acknowledges that the information necessary to assess public exposure to lawn care pesticides is lacking.[26] The Agency has virtually no data on two major routes of public exposure to lawn pesticides, through inhalation and skin absorption. The memo reveals, "In order to provide meaningful exposure estimates for homeowners and other individuals who may be exposed to pesticides via contact with treated home lawns, the Exposure Assessment Branch would need dislodgeable residue data." Children, with their playing habits, may be subject to the greatest levels of exposure. This is of serious concern as they are also at special risk to carcinogenic or neurotoxic pesticides which are particularly harmful to immature and developing systems.[27]

VIII. Where There Is No Federal Agency Or Policy For Pesticide Victim Reporting, Victim Stories Must Serve To Illustrate A Portion Of The Health Consequences of Lawn Pesticide Use.

Assessing the full societal cost of hazardous lawn care pesticides is impossible. As there is currently no federal agency or specific policy to report on the extent of poisonings and illnesses that result from pesticide use, we must rely on the stories of victims which illuminate a portion of the health

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[26]U.S. Environmental Protection Agency, *Lawn Pesticide Policy Group Briefing Paper*, January, 1988.

[27]E.J. Calabrese, *Age and Susceptibility to Toxic Substances*, John Wiley & Sons, 1986.

consequences. Newspaper articles announce the poisoning of school children in and around school areas, personal injury lawsuits are filed by the victims against lawn care companies, and neighbors fed up with family and pet poisonings from neighborhood pesticide drift have organized to create local notification ordinances. In Phoenix, the Department of Health Services received a rash of complaints from children experiencing rashes, headaches, and even a swollen face as a result of pesticide use at the school.[28] In many cases students had been playing on pesticide treated fields. A Florida elementary school had to be evacuated for two days after pesticide drift from a neighboring park left 35 students and staff suffering nausea and eye, nose, and throat irritation.[29] Marianne Johnson lost her dog following her use of 2,4-D and MCPP on shrubs. A neighbor's 2,4-D overspray on bushes poisoned John Jacobson's dog. Patricia Gergel hired ChemLawn Services Corp. The morning after their treatment with triclopyr, dacthal, and 2,4-D she woke up with hives on her arms and legs and continues to suffer outbreaks of rashes. A federal jury awarded her $67,000, mostly in punitive damages, for a suit which charged the company misrepresented the treatment as safe. Diazinon, a major use lawn pesticide, has been responsible for approximately 60 bird kills in 18 states involving 23 species of birds.

Associating the immediate effects of pesticide intoxication is easier than outcomes which occur sometime later such as cancer, birth defects, or behavioral and learning effects. Yet Janet Darling suspects that the 2,4-D use by the Forest Service near where she lived 3 months prior to the conception of her son and in the latter part of her pregnancy are responsible for her son's birth defects. The defects, cleft palate, deformed ear, malformed and missing neck vertebrae, and heart defects are remarkably similar to those seen in laboratory studies of 2-4-D exposure. The list of human and non-human victims is a long and growing one.

IX. Toxic Sensitization Is Increasing And Could Become An Even Larger Problem With Significant Economic Consequences Related To The Disablement of Productive Members of Society.

A medical problem that is receiving increasing attention and which deserves special consideration is the non-specific, debilitating syndrome of low level chronic poisoning, repeated exposure toxicity syndrome or toxic sensitization (often referred to as chemical sensitivity). Often (but perhaps not

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[28]L. Vrcan, "Are Pesticides a Cause for Concern?" *School and College Product News*, February, 1987.

[29]Nick Madigan, *The Palm Beach Post*, "Toxic Pesticide Fumes Make 35 Kids Sick, Force Closing of School, Park," May 22, 1986.

always) the result of some acute or traumatic exposure, victims suffer the triggering of symptoms and observed sensitivities at very low levels of chemical exposure. A recent report to the New Jersey State Department of Health by Dr. Claudia Miller at the University of Texas Health Science Center and Dr. Nicholas Ashford at the Massachusetts Institute of Technology contains the most comprehensive study of this topic to date, and concludes that "existing evidence does suggest that chemical sensitivity is increasing and could become a large problem with significant economic consequences related to the disablement of productive members of society."[30] For individual victims, the use of lawn care pesticides threatens their daily health during the spray season and forces lifestyle alterations.

For example, Carol Kapuszak faces long-term and continuing problems associated with her neighbors' application of lawn chemicals through the Chem Lawn Service Corporation.[31] She has experienced chemical sensitivity, immune dysfunction and severe toxicological reactions to any lawn chemicals to which she is exposed. Her complaints of violent illness (including headaches, nausea, and diarrhea) as a result of exposure to even minute amounts of air-borne lawn care chemicals are clearly documented. Her efforts to obtain prior notification before application of lawn care chemicals to avoid noxious toxicological response has, at times, been unsuccessful and has resulted in serious injury and increased medical costs.

Barbara Ann Smith also suffers from severe chemical sensitivity. Although seriously ill since birth, she was able to work, raise a family and lead a normal life until lawn spraying and fumigation of public buildings became widespread. Exposure to lawn pesticides has caused her to lose consciousness, go into convulsions, and experience kidney problems. Ms. Smith now requires constant care and friends drive her from her Williamsville, New York home when a nearby lawn is sprayed.

Marietta Butler is another victim of chemical sensitivity. She has lived in a motel room for more than four years because it provides the most benign environment. Ms. Butler was healthy until being exposed to lawn spray in 1981 while living adjacent to a golf course in Syracuse. She has experienced chest pains, numbness, shortness of breath and dizziness on several occasions. Since then she became severely allergic to gas or oil heating systems, synthetic

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[30]N.A. Ashford, and C.S. Miller, *Chemical Sensitivity: A Report to the New Jersey Department of Health*, 1989.

[31]Letter re. ChemLawn Company from Craig A. Slater, Assistant Attorney General, Environmental Protection Bureau, new York Department of Law, Buffalo, NY, November 21, 1989.

materials, non-organic food and other substances. Now permanently disabled, she left her teenage son with her parents in order to live in a motel room with electric heat in an all masonry building. Still she uses more than $500 worth of oxygen each month, and is forced to leave her room whenever lawn sprays are applied at nearby businesses or homes.

While the EPA has been slow to recognize the syndrome of toxic chemical sensitization, at least one pesticide product label recognizes the phenomenon. Under a note to physicians on a chlorpyrifos pesticide, a widely used insecticide, the label reads, "Repeated exposure to cholinesterase inhibitors may without warning cause prolonged susceptibility to very small doses of any cholinesterase inhibitor." A September, 1978 joint publication of the Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health, Occupational Health Guideline for Malathion, another widely used insecticide, cites, "Long-term Exposure: Repeated exposure to malathion may make a person more susceptible to the effects of this and related chemicals." The information is there to be seen, but EPA generally ignores it.

It has come to NCAMP's attention that a 1973 FAO/WHO review of a Dow Chemical Company study suggested that prior exposure to chlorpyrifos can sensitize rats to additional exposure. This study, to the best of our knowledge, has never been published by Dow. We request the Subcommittee's assistance in obtaining this study.

X. Despite the Risks of Pesticide Exposure, The Public Is Mislead By Pesticide Advertising

According to the 1986 non-agricultural report cited above, GAO conducted an undercover survey to determine how chemical lawn care companies represented the safety of their products. GAO explained, "To find out what health and safety information professional applicators provide to potential customers, we wrote to 18 lawn care companies and pest control firms, asking for information on the pesticide chemicals they use and the "safety" of their chemicals. We identified ourselves as private citizens seeking professional services, rather than GAO representatives. . ." The results of this survey can be summarized as follows. "none of the professional applicators specifically discussed chronic health risks Eight of the nine firms that sent us information on health and safety stated that their chemicals are registered or approved by EPA, as part of their health and safety discussions."[32] Similarly, pesticide manufacturers' claims indicate a disturbing lack of candor, given the

[32]GAO, *Nonagricultural Pesticides: Risks and Regulation*, 1986.

fact that the products are registered under a standard in the federal law that allows for public exposure to levels of risk which the public is not aware.

An advertisement, typical of most (attached), refers EPA's pesticide registration program and an approval process, "based upon the submission of scientific evidence to demonstrate that the product can be used safely and effectively." EPA does neither.

In a 1989 letter to an NCAMP board member (Allen Spalt, with the Pesticide Education Project in Carrboro, North Carolina), EPA explains that,

> "FIFRA Sections 12(a)(1)(E) and 12(a)(1)(B) refer to advertisement in the context of the 'distribution and sale' of a registered pesticide. The term 'distribution and sale,' as defined by FIFRA Section 2(gg), does not include the service of applying a registered pesticide. Therefore, a pest control operator who provides the service of controlling pests by applying registered pesticides without delivering any unapplied pesticides, cannot be in violation of either FIFRA Sections 12(a)(1)(E) or 12(a)(1)(B) because he has not 'distributed or sold' the pesticide. Finally,k the advertisement you described in your letters refers to the safety of the service and not to the safety of the pesticide product. FIFRA does not regulate advertisement in the context of the applicator's service of controlling pesticides." (letter attached)

Clearly the advertisement's focus on a service (which inherently includes the use of a pesticide) as opposed to an advertisement's focus on a pesticide is a distinction only in the minds of people who have lost sight of their mission --to protect the environment and the health and safety of the public. If Congressional intervention is necessary to interject some level of clarity, then so be it.

XI. The Federal Law Has Failed To Protect Public Health and the Environment

I would be remiss if I did not use this opportunity to point out that FIFRA is a failed statute. FIFRA has allowed the contamination of our food supply with ethylene dibromide (EDB), daminozide (Alar™), EBDC's, heptachlor among others, the poisoning of our drinking water with dozens of pesticides, and the contamination of our homes and indoor air with chlordane. The law allows to this day the use of pesticides directly around children and pregnant women without any testing for birth defects, reproductive and genetic effects and cancer.

It should be said from the outset that the underlying premise of FIFRA has undermined public protection and effective, sustainable pest management.

The management of the Act itself has undermined public trust and confidence in the administering agency, the U.S. Environmental Protection Agency (EPA). The regulatory process, as it is now structured, and would remain under all the legislative proposals to-date, takes us down a path that has inflated pesticide benefits, which then in turn serve as justification for high risk public exposure. In other words, FIFRA's risk-benefit standard has failed us.

Public and media attention have recently focused on the pesticide problem as it relates to pesticide residues in food. The pesticide problem, of course, is broader than food exposure and is associated with a range of uses that affect people in their homes, schools, work places, parks and in the community at-large. The production, use and disposal of pesticides has broad environmental contamination implications, including the poisoning of ground and drinking water. Wildlife and other animals are directly threatened, as well.

As issues become compartmentalized by EPA, the Agency attempts to cloud the broader implications of the threat the public is facing from pesticides. For instance, a focus on pesticide residues in food by itself, if explained away as an acceptable or "negligible risk," can shift public attention from the real public health threat associated with multiple exposures to toxins, resulting in an unnecessarily and dangerously high toxic body burden. Clearly, pesticide exposure through food is part of a larger public health and environmental threat that results from pesticides, from their production to use to disposal.

While the pesticide problem has been well-documented, government and industry alike are engaged in a well-financed effort to discount the large and growing level of consumer concern. In the midst of public concern, trade groups and some states have done more to confuse than inform the public. The thrust of the public relations brochures that are currently being distributed are intended to defuse public concern through misrepresentation of the facts. What the U.S. General Accounting Office (GAO) said with regard to non-agricultural pesticides in 1986, can also be said of pesticide residues on food, *"The public receives misleading information on pesticide hazards."*[33]

The public's concern about pesticides is well-founded. It must be channeled into real reform of our nation's failed pesticide control statute and the application of alternatives to pesticides, not defined away by models that ten years from today will find the nation's cancer epidemic still robbing families of their young loved ones at a rate of one in four premature deaths

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[33]U.S. Gene· ounting Office (GAO), *Nonagricultural Pesticides: Risks and Regulation*, W· ı, D.C., GAO/RCED-86-97.

(or worse, has climbed even higher). In recent years, the public has experienced numerous fiascos which support the high level of public outrage. From the ethylene dibromide (EDB) contamination of the grain-based food supply in 1983, to the heptachlor in milk and chicken stories in 1986-89, to the recent Alar™ coverage, the public has come to distrust government's ability to protect them. The public has experienced or read about chlordane contamination of homes across the United States and found 74 pesticides polluting the groundwater of 38 states.

The issue today is not whether there is a problem --numerous government and independent reports have highlighted the problem, the issue is what are we going to do about it. We do not believe that the issue must inevitably polarize those who provide lawn care services from the community. We are already seeing successful examples of those who provide a non-chemical lawn care service.

Having worked on pesticide issues now for over a decade, I can tell you that public concern has grown steadily and continues to grow. The challenge is to craft laws that respond to the problems, rather than cover them up. Meanwhile, the use of pesticides is not even yielding the results claimed by industry, with insect resistance reported in 447 insect species and related organisms and weed resistance in 45 species. In the absence of good law, people must be able to protect themselves through active and informed local organizations that provide them ready access to information and help people to work together.

A. The goals of FIFRA need reorientation.

***NCAMP premise:** As a goal, our national pesticide control act should be reoriented to become a federal pest management act. It should govern pest management practices under a regulatory scheme that is health-based and designed to protect all susceptible human populations and ensure environmental quality is not degraded, but protected, through the promotion of safe pest management practices and by minimizing dependency on toxic chemical pest management.*

Until the underlying problems with FIFRA are addressed, efforts to tinker with the statute will have only marginal effect. Therefore, we urge this subcommittee to consider seriously a genuine overhaul of the statute. Critical to this overhaul is the recognition that pesticides are a means to an end, not an end in itself. Their use is not justified except under the most serious situations where it has been shown that nonchemical approaches, including biological controls and cultural practices, can not effectively do the job. And even then, egregious adverse effects would not warrant there use. This restructured federal law must prohibit the use of poisons to grow commodities

for surplus and the use of poisons for cosmetic purposes. The law must ensure that our nation engages in appropriate land use and that we do not allow the use of poisons to promote vegetation or landscapes in areas where they are particularly vulnerable and therefore highly chemically dependent.

B. Right-to-Know, While a Step in the Right Direction Is Not Enough Protection

While NCAMP has supported the dozens of state notification laws and local notification ordinances, and has called for a similar federal provision, notification alone does not protect people against the inappropriate use of pesticides. The bottom line is that we are not using pesticides appropriately when we use them for cosmetic purposes and when alternative non-chemical approaches exist.

XII. The Public's Health Is Unnecessarily Threatened By the Use of Lawn Pesticides.

The data presented and the stories relayed are undeniable. Existing use patterns and regulation of lawn pesticides is not protecting the public's health. Rather, the unleashing of these chemical toxins into our environment for aesthetic gain is responsible for countless human suffering and untold environmental consequence.

In the words of Rachel Carson, "How could intelligent beings seek to control a few unwanted species by a method that contaminated the entire environment and brought the threat of disease and death even to their own kind? Future generations are unlikely to condone our lack of prudent concern for the integrity of the natural world that supports all life."

TESTIMONY OF

CRAIG TAYLOR

SAFER, INC.

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,

RESEARCH AND DEVELOPMENT

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

March 28, 1990

Mr. Chairman, and distinguished members of the Subcommittee, my name is Craig Taylor, President and Chief Executive Officer of Safer, Inc. I thank you for the opportunity to testify, and commend this Subcommittee for its interest in addressing the use and regulation of over-the-counter and commercially applied pest control chemicals on lawns, gardens and public spaces.

I do not appear at this hearing to criticize either Safer's competitors who manufacture traditional synthetic chemicals or the practices of lawn care companies who provide services that are requested by the public. This Subcommittee will examine various industry segments within the context of its oversight mandate. Indeed, any additional regulation of the lawn care industry will surely impact my company. Notwithstanding, Safer stands ready to be of assistance to the Congress in achieving one of the most important objectives in this century and beyond: a clean, healthy and safe environment that thrives and endures.

Safer was founded in 1978 by a concerned group of scientists who believed that alternative pesticide products, manufactured from naturally-occurring fatty acids, would find broad acceptance and use in consumer, commercial and agricultural applications. Today, twelve years later, Safer markets more than 50 pesticide, plant care and pet care products derived from natural ingredients that are sold in over 10,000 U.S. retail outlets, 2,000 Canadian retail outlets and 19 other countries. The basis of our chemistry is very different from the active ingredients found in traditional pesticide products. The vast majority of our products are based upon naturally-derived fatty acids. These fatty acids are the same as those in soap and in some of

our food, and are commonly found in animal fats and plants. They have two key qualities that we find important: First, there is a very different level of acute oral toxicity, on average one-fortieth the level found in most common household pesticide products. In fact, the EPA itself in a Federal Register notice stated that the fatty acid active ingredients in our products are "found in commonly eaten oily foods such as corn and peanuts and are considered nontoxic to humans."[1] The second key characteristics is that these products rapidly break down in the environment into three harmless substances: potassium, water and carbon dioxide.

Of these important characteristics, we can only tell the American public about efficacy. We cannot inform the American public that our products are less toxic than competing synthetic chemical pesticides or that they biodegrade in less than forty-eight hours. In short, we cannot promote our differentiated selling points, those that consumers and the environment would most benefit from.

The reason for this is that the regulations that govern our industry were written fifteen years ago when only synthetic chemicals existed as viable commercial products. The EPA, seeing a need for regulation of the sale and use of pesticides then on the market, enforced regulations in such a manner as to eliminate all safety claims from the product labeling. In fact, if we used nothing but pure water in our product, we would still be required to put warning labels on our bottles. This enforcement has continued to this day.

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[1] 47 *Fed. Reg.* 1378 (January 13, 1982).

The net result, however, is to provide a disincentive for the development and promotion of products with distinctly different safety characteristics. Besides discouraging innovation, it discourages the development of small businesses interested in this market.

I know that my company holds the view that the development and use of alternative pesticide products are important to the future of our nation's health and ecology. I believe the Environmental Protection Agency agrees with us. Indeed, I would hope that EPA will share its policy views on this subject with this Subcommittee in the course of these hearings.

Our company is predicated upon the belief that American and foreign consumers share a growing preference for products that are natural, biodegradable and virtually non-toxic to humans and animals. Presumably, as the number of individuals concerned about the environment increases, there would be a corresponding rise in their demand for such products. This is a reasonable assumption -- provided that the public is aware of their existence. More than this, Safer's market research indicates that 85% of U.S. consumers would prefer to use alternative biopesticides, but that only 2% of this group is able to identify these products by name. In our free market economy, product promotion is a key factor in developing consumer awareness, disseminating needed information, differentiating products, and meeting demand, whether that demand is known or latent. However, if this was merely a matter of marketing dollars, I would not be here today. What is critical to us, though, is no matter how much money is spent on this issue, current regulations will not allow us to present the facts about our products

truthfully and accurately.

We have approached EPA with a number of ideas as to how to overcome this particular problem. We have suggested a variety of options. These included labeling products such as ours as "environment friendly". We have also attempted to obtain permission to use the term "biodegradable" or "contents biodegrade within forty-eight hours". All of these were deemed to be "safety claims" prohibited under the current regulations.

Although I can understand EPA's desire to maintain its strict pesticide labeling regulations, I also know as a businessman that customers make over 90% of their purchasing decisions right at the store shelf. If you cannot put the key safety attributes on your label, or your in-store advertising, you cannot tell these consumers what they have a choice of buying. Just as sodium and cholesterol-conscious shoppers read food labels and advertisement, so too do environmentally conscious consumers of lawn and garden products.

We strongly believe that the EPA and companies such as Safer, should be partners in improving the quality of our environment. Both of us proclaim that the development and use of alternative pesticide products are important to the future of our nation's health and ecology. But without help from this Congress, EPA will be unable to move quickly to change its regulations to encourage the development of these alternative products.

As an example of this, the lawn care market is an especially attractive opportunity for my company. We want to develop alternative products for this

market, for it is a natural extension to our present home and garden business. We will take our chances competing with basic producers and large formulators of synthetic chemicals. But in the absence of an opportunity to promote the very characteristics which make our products special, we are not inclined to enter into this segment. This is not a decision brought about by competition; it is a decision forced upon us by government. The only people who benefit as a result of this are those who market traditional synthetic chemicals.

Mr. Chairman, and distinguished members of this Subcommittee, Safer believes that it is imperative that affirmative steps be taken by this Congress to address these deficiencies in the current regulation of pesticide products. Without these changes, the incentive to develop alternative, environmentally friendly technology and products will be negated. Diligent consumers will be deprived of the right to make intelligent and informed product selections. All the while, the cost of preparing and replenishing the damaged environment will rise. We offer to work actively with you, just as we have offered to work with EPA. It is clear that all of us must work together. Freedom of truthful and accurate speech must be encouraged. Give the American public a right to choose a cleaner environment. We urge the Subcommittee to give these matters its most careful consideration. The timing is critical. To delay even for a moment will have a devastating long-term impact on our environment and our future. It will also discourage new entrepreneurs from developing environment friendly products to give the consumer a choice and the environment a chance.

I thank you for this opportunity to appear and testify before you on a most important environmental issue. I will be pleased to answer any questions.

Statement of Dr. Michael P. Kelty
The O.M. Scott & Sons Company

Senate Subcommittee on Toxic Substances, Environmental Oversight, Research and Development
March 28, 1990

Mr. Chairman and members of the Subcommittee, my name is Michael P. Kelty, Ph.D. I am Vice President of Research and Development for The O.M. Scott & Sons Company, and have spent my entire professional career in environmental science. The Research and Development department at Scott is the world's largest single organization which focuses solely on developing improved products for the care of turfgrass and ornamental plants. I am pleased to testify today before the Senate Subcommittee on Toxic Substances, Environmental Oversight, Research and Development on the use of lawn care products.

The O.M. Scott & Sons Company

The O.M. Scott & Sons Company was founded in Marysville, Ohio, in 1870 by Civil War veteran Orlando McLean Scott as a small family-run operation processing and selling farm crop seed. In the early 1900's, Scott began to sell weed-free lawn seed to growing golf course and consumer markets. In the late 1920's, Scott began a series of "firsts", including the introduction of the first home lawn fertilizer, the first lawn spreader and the first patented bluegrass seed. In 1965, Scott introduced its turf care line for professional users such as golf courses, athletic fields, and, later, lawn care services. In 1988, the company purchased the Hyponex Corporation's organic lawn and garden business. Hyponex, we believe, is the largest recycler of organic materials in the United States. Scott employs approximately 1500 people in over 30 locations nationwide.

It is estimated 53 million households purchase lawn and garden products. Scott, through its Consumer Business Group, is the largest company in the do-it-yourself market. In addition, Scott's Professional Business Group is the leading supplier to professional turf managers.

Scott manufactures and sells a diversified line of proprietary products. These include fertilizers, control products (including herbicides, fungicides and insecticides), fertilizer/control combinations, grass seeds and mechanical spreading devices. Products for consumers are distributed to approximately 15,000 retail outlets nationwide and include such brand names as Turf Builder (R) lawn fertilizer, Turf Builder Plus 2 (R) fertilizer and weed control, and Turf Builder Plus Halts (R) crabgrass preventer plus fertilizer. Products for professional clients are distributed to approximately 12,000 golf courses, landscapers, lawn care service operators, and nurseries among others.

Scott's organic products, which are marketed principally under the Hyponex name, are various mixtures of peat humus, soils, manures, and barks.

The Use of Lawn Care Products

Lawn care products are made to be safely handled and applied by consumers, without any substantial risk to them, their families, neighbors, pets, or to the general environment. Scott's typical do-it-yourself lawn care products have the following safeguards:

- Clear EPA approved directions and precautions;
- Active ingredients which are approved by EPA and listed on the label;

- Formulation approved by EPA;
- Formulated by Scott to be toxicologically and environmentally safe, and agronomically effective;
- Packaged as dry, granular product that is easily applied by a mechanical spreader inches above the turf (to minimize drift and facilitate easy clean up if there is spillage); and
- Any pesticides are in dilute form (so consumers are not exposed to concentrated chemicals).

Current EPA labeling requirements assure that homeowners know what is being applied to their lawn and can give that information to others who may inquire. In the case of Scott products, the package also provides a toll free number for homeowners who seek further information about the use of our products, their safety and proper application.

Our instructions clearly define for the homeowner how to apply the product and the proper application rates. There are no incentives for the overapplication of these products. It is, in fact, to the economic benefit of the homeowner to apply these products as little as possible and as seldom as possible. Furthermore, there are no agronomic benefits from overapplication of our products.

We believe the safeguards described in these comments should allay any concerns about do-it-yourself products. In fact, our experience over many years in developing, testing and marketing these products and in communicating about them directly with consumers through our toll-free "hotline" in over a million calls since

1972, confirms that consumer products with this type of labeling do not present a hazard when applied by do-it-yourselfers. This is also supported by data recently published by EPA and Poison Control Centers.

These facts lead Scott to object to posting and prenotification regulations as they pertain to the do-it-yourself use of lawn care products. Our objections are based on the following points:

- o Existing safeguards inherent in do-it-yourself products are adequate to protect health and safety.

- o Posting and prenotification measures are impractical to implement and impossible to enforce.

- o Posting and prenotification measures attempt to legislate good neighbor relations. It is much preferred that neighbors seeking advance notice of product application receive it as a matter of courtesy from a neighbor who, after all, continues to reside in the neighborhood well after the application.

Scott Product Review

Scott lawn care products perform their intended function with no unreasonable risk to human health or environmental safety. There are two key steps in product stewardship as practiced by Scott. The first is the detailed in-house product review by Scott and the second is government product registration.

Scott, like most companies supplying the lawn and garden market, is a product formulator. For its control products Scott purchases pesticide ingredients rather than synthesizing and manufacturing its own. Typically, by the time Scott considers a new pesticide for use in its products, the chemical will have had extensive agricultural use. The toxicology and environmental testing necessary

to procure the original agricultural registration is, therefore, available for review. Only chemicals posing no unreasonable adverse effects in manufacturing, distribution and use are put in Scott products.

Scott uses the same standards for non-pesticide ingredients as it does for pesticide formulation. All of Scott's ingredients can be found in Federal Drug Administration's GRAS (Generally Recognized As Safe) list and/or on the Environmental Protection Agency's list of inert ingredients that are exempt from tolerance.

The final step in Scott's in-house review is toxicological testing of all end-use formulations. This testing describes the acute toxicity potential and is the final check before accepting a new product formulation. Only after this extensive in-house review do we take our product to regulatory agencies for registration.

The product registration takes place at both the federal and state levels. The review proceeds along two lines -- product review and label review.

Regulatory agencies review pesticide-containing formulations for potential adverse effects. Products not meeting clearly defined criteria are denied registration. Agencies further classify registered products for general unrestricted use or restricted use depending on their hazard potential. All of Scott products sold for homeowner use are classified by these agencies as general unrestricted use products. Simply stated, such a classification means that on the basis of scientific evidence there is an adequate safety margin between anticipated exposure and any acute or chronic toxicologic or adverse environmental response. Thus, the registration process assures that only safe products enter the marketplace.

The label is an important tool to educate consumers because even safe products can be misused. The law requires that labels describe ingredients and give directions for safe use. No product is approved by the government agencies without an acceptable label.

Environmental Safety

There have been unfortunate and unfounded assertions that lawn fertilizers contribute to water pollution via runoff to surface water and leaching to groundwater. Scientific literature accumulated over the past decade shows that runoff and leaching of such fertilizers are unlikely. In fact, turf is an excellent runoff preventor and filter.

A recently completed review of scientific data on the fate of nitrogen applied to turfgrass has been published by Dr. Martin Petrovic of Cornell University. With regard to leaching, Dr. Petrovic found that it occurs only under extraordinary circumstances: combining excessive application rates, sandy soils and excessive irrigation. A similiar conclusion was reached by Dr. Stuart Z. Cohen of the Environmental Protection Agency in an extensive study of the environmental fate of agricultural chemicals applied to golf courses on Cape Cod.

The role of phosphate in the eutrophication process of lakes and streams has also been well studied. Research conducted on phosphates from lawn fertilizers arrives at the overwhelming conclusion that turf fertilizers do not constitute an unreasonable threat to surface water quality. In our opinion the scientific literature shows:

- Phosphate is quite immobile because it is strongly absorbed by soil particles.

- Runoff from lawns treated with phosphatic fertilizers did not show elevated rates of phosphorus.

Several excellent studies have also been recently published which examine the environmental fate of pesticides applied to turf and ornamental plants. Professors Watsche and Mumma of The Pennsylvania State University studied the effect of nutrients and pesticides applied to turf on the quality of runoff and percolating water. Their conclusion is as follows:

> "To the degree to which the site employed for this project is representative of other turfgrass sites in the Central Pennsylvania Region, **the impact of well managed turfgrass on water quality appears to be positive in nature**, based on the hydrologic characteristics of all three cover types and establishment methods studied. (emphasis added) The results indicate that dense, high quality turfgrass stands, regardless of establishment method, affect the overland flow process to such a degree that runoff is insignificant. The ability of this type of vegetative community to allow water to infiltrate and promote the metabolism of solutes suggests that **it might even possess the ability to be used as a water quality treatment medium.**" (emphasis added)

Dr. H. Niemczyk of The Ohio State University provides additional evidence of the environmental benefit of well maintained turf. A loose layer of dead and living plant parts called thatch is almost universally found in well maintained turf. Dr. Niemczyk found that thatch greatly impedes the potential leaching of commonly used turfgrass chemicals. Further, he has observed enhanced microbial degradation of pesticides in thatch upon which pesticides had previously been applied.

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Benefits of Turfgrass and Ornamental Plants

Gardening is the number one outdoor leisure activity for more than 53 million Americans who derive pleasure, relieve stress and take great pride in caring for their own lawns according to a 1987-1988 Gardening Association survey.

A homeowner also benefits economically from a healthy green lawn and attractive landscaping according to a recent survey of real estate agents. It was estimated that well maintained lawn and landscaping add more than $6,300 to the resale value of a $70,000 - $90,000 home.

In assessing the risk/benefit equation for maintaining quality turf and ornamental plants the argument is often advanced that the benefits of turfgrass and plants are "purely cosmetic" and therefore not important. This statement is completely wrong. In addition to providing meaningful aesthetic value, lawn turfgrasses play an important functional role improving the environment. The benefits include:

- Oxygen Generation - The renewal of oxygen is, as everyone knows, essential to the environment. Through photosynthesis, plants release oxygen. It has been determined that an actively growing turf area of 625 square feet (25' x 25') produces enough oxygen to meet the annual oxygen needs of one human being.

- Air Purification - Turf and ornamental plants absorb a wide variety of airborne pollutants. For example, an acre of grass will absorb hundreds of pounds of sulfur dioxide and carbon dioxide, pollutants implicated in acid rain and the greenhouse effect. Grasses also trap millions of tons of particulate dust and dirt. While

the extent to which air purification occurs with grasses will not in itself solve the existing air pollution problems, growing plants serve an environmentally positive function as recognized by Presidents Bush's initiative to plant a billion trees by the end of this decade.

- Soil Erosion Control - The largest pollutant of water in the U.S. is sediment. Over 4 billion tons of sediment are subjected to runoff annually. Erosion along roads, rights-of-ways, and in urban developments contribute significantly to sediment pollution. Turf is very effective in controlling erosion through its ability to absorb and hold water. In fact a dense lawn is second only to virgin forest in absorbing rainfall.

- Temperature Control - Trees, shrubs, and turf are among the best solar radiation control devices. They absorb heat, and dissipate it in a process called evapotranspiration. It is estimated that an acre of turf will have the cooling effect of a 70 ton air conditioner.

  Comparison of infrared surface temperatures of artificial and natural turf show striking differences. A study by Dr. Mecklenberg at Michigan State University found that when the surface temperature of natural turf was 83^0 the temperature of adjacent artificial turf at was 153^0 F. It has been estimated that increasing by 10% the area of turf and landscaping plants on Manhattan Island would reduce maximum summer air temperatures by $8\text{-}10^0$ F.

- Noise Abatement - Noise pollution continues to be a problem particularly in the urban environment. Vegetation, when placed properly can decrease the noise level by 15 - 45% along heavily trafficked urban freeways. Research on the acoustical properties of turf show grass plants to have marked ability to absorb sound.

- Recreational Benefit - Safe, low cost playing surfaces are necessary to provide the recreational and exercise needs of our population. According to Professor James Beard of Texas A & M University, turfgrasses offer the least expensive and safest surface for sports and recreation.

  The overall condition of playing fields contributes to their safety. In a recent University of Pennsylvania study, 20% of injuries to scholastic athletes were attributed to field conditions. Children need high quality, well-maintained playing surfaces for exercise, recreation and enjoyment. Without the availability of appropriate lawn care products, we jeopardize the safety and health of those utilizing our parks and sports fields.

Although it is evident that all of us can enjoy greater health and economic benefits because of well-maintained green grass, it is reported by the President's Council on Environmental Quality that each year over one million acres of land is removed from green growth in the United States. It is estimated by the turn of the century, over 75% of America's population will reside on less than 10% of the land. One of our countries biggest challenges will be to maximize the benefits of turf for more Americans in less area. One such way is to place a high priority on well-maintained green lawns, gardens, parks

and playing fields. It is essential for nutritional needs of the grasses, flowers, and ornamentals that fertilizers be applied and, if necessary, that specialized products like pesticides be used to effectively control disease and weeds in order to maximize the benefits of turf, ornamentals and shrubs.

Summary

As demonstrated, well maintained turf and ornamental plants yield significant aesthetic and environmental benefits. Properly exploited these benefits can greatly add to our quality of life particularly in the urban and suburban environment. To pass turf and ornamental plants off as "purely cosmetic" is wrong and scientifically narrowminded. We will not derive the benefits of turfgrass without the judicious use of lawn chemicals.

As a leader in the lawn and garden products industry The O.M. Scott & Sons Company exercises the utmost care in the development, marketing and use of its products. The facts we presented to the Subcommittee today clearly show that:

- o do-it-yourself lawn and garden care products are safe;
- o they present no health or safety risks to people or to the environment; and
- o existing law and regulations regarding the do-it-yourself lawn care products are adequate.

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STATEMENT OF DR. EUGENE F. HESTER, ASSOCIATE DIRECTOR, NATURAL RESOURCES, NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR, BEFORE THE SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, AND RESEARCH AND DEVELOPMENT, OF THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS HEARING TO REVIEW USE, REGULATION, AND POTENTIAL HEALTH RISKS OF OVER THE COUNTER AND COMMERCIALLY APPLIED CHEMICALS ON LAWNS, GARDENS, AND PUBLIC SPACES.

MARCH 28, 1990

Mr. Chairman, it is a pleasure to appear before this Committee today to discuss the National Park Service's Integrated Pest Management Program (IPM) and how this program has reduced reported use of pesticides on National Park System lands.

Federal policy concerning the regulation of pesticides has existed since 1910 through various statutes. The most comprehensive of these statutes is the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947, with amendments. The provisions of FIFRA which most directly apply to the National Park Service are those which: (1) restrict the use of pesticides and (2) concern the certification of pesticide applicators. Other Federal statutes which govern the use or disposal of pesticides include: The Toxic Substance Control Act, The Clean Water Act, The Clean Air Act, and The Resources Conservation and Recovery Act.

Former Presidents Nixon and Carter issued directives to government agencies concerning the use of pesticides and pesticide management programs on Federal lands. In response to these directives, the Department of the Interior and the National Park Service developed policies concerning the use of pesticides. An Integrated Pest Management approach was adopted to address the broader subject of pest management.

In 1979, prior to President Carter's memorandum directing Federal Agencies to implement integrated pest management strategies within their agencies wherever practical, the Washington Office of the National Park Service, The National Capital Region of the NPS and the Environmental Protection Agency jointly initiated an integrated pest management demonstration project in several parks in the National Capital Region. The purpose of this project was to test the feasibility of implementing IPM on a Service-wide basis. In 1980, based on the results of this project, the NPS adopted by policy an Integrated Pest Management approach to pest management.

The objectives of the National Park Service's IPM program are to:

- Provide effective pest management using IPM techniques transfer while reducing potential pesticide impact(s) to park natural and cultural resources.
- Maintain awareness of changes in regulations and policies of other agencies which may have a bearing on the IPM program.
- Develop NPS policies which reflect statutory changes.

- Rapidly assess Servicewide use of pesticides.

- Maintain awareness of developments in non-chemical and chemical pest management technology and rapidly transmit these to field units.

- Identify training needs, develop training materials, and conduct IPM training and trainiing meeting the requirements for pesticide applicator certification.

The National Park Service has made significant advances towards these goals since 1980. Some of the accomplishments include:

- The National Park Service now has a full time staff in the Washington Office and collateral duty regional IPM Coordinators and park IPM coordinators to execute the IPM program in the field.

- Specific policy statements in the NPS's Management Policies (copy of pertinent sections are attached) concerning pesticide use, pest management and Integrated Pest Management.

- Development of a 40 hour training course on IPM principles which serves as core training for those NPS employees needing pesticide applicator certification. Other agencies such as Bureau of Land Management and Bureau of Reclamation are considering this course to meet part of their training needs. The NPS has also developed or sponsored courses on specialized topics, such as structural pest management, mosquito management, and gypsy moth management.

- Developed an extensive IPM Information Manual which provides non-chemical pest management information of the 45 most frequently encountered pest management problems in the NPS.

- Developed a series of training videotapes on different aspects of pest management. These videtapes are also made available to the general public through a cooperative agreement with the National Park Foundation. A copy of the brochure is attached. The NPS is currently cooperating with the Armed Forces Pest Management Board to develop additional videotapes on pest management subjects of joint interest to the National Park Service and the Armed Forces.

- Identified pesticides or pesticide use patterns which could affect park resources, and altered NPS use of these materials by finding non-chemical approaches or a suitable chemical alternative. For example, the NPS has been able to substitute oils and boric acid, for scales and cockroaches respectively, as replacements for more toxic chemicals.

- Reduced reliance on scheduled contract pest management treatments substituting instead, monitoring of pest population levels, establishment of action thresholds, and the use of non-chemical approaches. If these techniques fail chemicals may be used on an as needed basis.

- Reduced the amount of pesticides used on a Servicewide basis from approximately 32,000 pounds used in 1983 to approximately 25,000 pounds used in 1986, which is the last year for which we have completed data analysis. A profile of our pesticide use is attached.

- Recently developed draft guidelines for the use of herbicides on turf areas within the National Park System. These guidelines are currently being tested in the National Capital Region for suitability and to determine whether or not these guidelines meet the needs of our field personnel and provide adequate direction.

Mr. Chairman, this concludes my prepared testimony. I will be pleased to answer any questions you may have.

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TESTIMONY OF WILLIAM R. ROBERTS, CGCS

MARCH 28, 1990

MR. CHAIRMAN, MEMBERS OF THE COMMITTEE, MY NAME IS WILLIAM R. ROBERTS AND I AM FROM GROSSE POINTE WOODS, MICHIGAN. I AM A CERTIFIED GOLF COURSE SUPERINTENDENT AT THE LOCHMOOR CLUB, LOCATED JUST OUTSIDE OF DETROIT AND I AM HERE TODAY IN MY CAPACITY AS SECRETARY/TREASURER OF THE GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA. THE GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA, OR GCSAA, IS THE ONLY INTERNATIONAL ORGANIZATION THAT DEFINES AND SUPPORTS THE GOLF COURSE SUPERINTENDENTS PROFESSION. FOUNDED IN 1926, GCSAA HAS NEARLY 10,000 MEMBERS REPRESENTING ALL 50 STATES IN THE UNION AND OVER 30 COUNTRIES OUTSIDE THE U.S. WE HAVE MEMBERS AT MORE THAN 60% OF AMERICA'S PUBLIC, PRIVATE, SEMI-PRIVATE, MUNICIPAL AND GOVERNMENT GOLF COURSES. GCSAA MEMBERS PROVIDE OUTSTANDING PLAYING CONDITIONS FOR SOME 23.5 MILLION GOLFERS WHO PLAY APPROXIMATELY 500 MILLION ROUNDS OF GOLF EACH YEAR.

TODAY, I WOULD LIKE TO ADDRESS THREE SPECIFIC AREAS: EDUCATION, PESTICIDE PACKAGING AND RESEARCH. I TRUST THAT MY COMMENTS WILL BE VIEWED AS A REPRESENTATION OF THOUGHTS UNIQUE TO THOSE WHO MANAGE GOLF COURSES. ALTHOUGH THIS COMMITTEE IS SURE TO RECEIVE COMMENTS FROM OTHER GROUPS THAT REPRESENT A NUMBER OF DIFFERENT

TURFGRASS PERSPECTIVES, GCSAA'S MEMBERSHIP IS TOTALLY CONTAINED WITHIN THE GOLF INDUSTRY; THESE COMMENTS REFLECT ONLY ISSUES SPECIFIC TO THOSE INTERESTS.

GCSAA SPONSORS NUMEROUS ACTIVITIES IN ORDER TO PROVIDE CONTINUING EDUCATION FOR GOLF COURSE SUPERINTENDENTS, INCLUDING THE JUDICIOUS, RESPONSIBLE USE OF PESTICIDES AND FERTILIZERS. GCSAA SPONSORS SOME 80 ONE AND TWO DAY REGIONAL SEMINARS THAT DRAW THOUSANDS OF ATTENDEES EACH YEAR. THESE FOCUS ON SUCH TOPICS AS DISEASE AND INSECT IDENTIFICATION, ENVIRONMENTAL CONSIDERATIONS IN GOLF COURSE MANAGEMENT, EMPLOYEE AND COMMUNITY RIGHT-TO-KNOW AND INTEGRATED TURF MANAGEMENT AND HAVE BEEN OFFERED FOR THE PAST DECADE. FORUMS ADDRESSING GROUNDWATER MONITORING AND PROTECTION AND WATER QUALITY WILL BE OFFERED IN THE COMING YEAR. THESE EDUCATIONAL OPPORTUNITIES PROVIDE OUR MEMBERSHIP WITH THE TOOLS NECESSARY TO UNDERSTAND AND SAFEGUARD OUR ENVIRONMENT, PARTICULARLY WHEN VIEWED WITH THE KNOWLEDGE THAT 97% OF THE GOLF COURSES WITH A GCSAA MEMBER HAVE ONE OR MORE LICENSED PESTICIDE APPLICATORS.

WE HAVE TAKEN A STRONG POSITION ON THE PROMOTION OF INTEGRATED TURFGRASS/ORNAMENTAL MANAGEMENT, NOT ONLY THROUGH OUR OWN EDUCATIONAL/COMMUNICATION PROGRAMS, BUT ALSO BY WORKING WITH THE ENVIRONMENTAL PROTECTION AGENCY. AS ONE EXAMPLE, WE ARE UNDERWRITING THE COST OF REPRINTING EPA'S TURF IPM BOOK FOR USE NATIONWIDE. APPARENTLY, BUDGET LIMITATIONS HAVE PRECLUDED FEDERAL EXPENDITURE TO REPRODUCE AND DISTRIBUTE THIS MANUAL BY THE AGENCY. THE POINT,

WITH ALL DUE RESPECT, IS THAT GCSAA IS COMMITTED TO THIS APPROACH AND WOULD LIKE TO TAKE THIS OPPORTUNITY TO URGE THIS COMMITTEE'S SUPPORT FOR GREATER FUNDING FOR INTEGRATED TURF/ORNAMENTAL MANAG EMENT WITHIN EPA.

GCSAA ALSO SUPPORTS A GROWING CERTIFICATION PROGRAM FOR SUPERINTENDENTS THAT STANDS AS A SHINING EXAMPLE TO THE REST OF THE INDUSTRY. IMPLEMENTED IN 1973, MORE THAN 1100 CURRENTLY ACTIVE GOLF COURSE SUPERINTENDENTS ARE CERTIFIED. IN ORDER TO ACHIEVE THIS LEVEL OF PROFESSIONAL RECOGNITION, ONE MUST MEET STRINGENT EDUCATIONAL REQUIREMENTS, COMPLETE A SIX HOUR EXAMINATION AND SUBJECT HIS OR HER GOLF COURSE TO A FORMAL REVIEW BY A TEAM OF CERTIFIED PEERS. FURTHER, TO REMAIN CERTIFIED, A GOLF COURSE SUPERINTENDENT MUST PROVE PARTICIPATION IN A MINIMUM OF 150 HOURS OF CONTINUING EDUCATION EVERY 5 YEARS OR 30 HOURS PER YEAR.

BY 1991, EPA, UNDER FIFRA SECTION 19 (G), MUST DEVELOP WAYS TO ENCOURAGE OR REQUIRE THE RETURN, REFILL OR REUSE OF PESTICIDE CONTAINERS. EPA MUST ALSO ENCOURAGE OR REQUIRE DEVELOPMENT AND USE OF PESTICIDE CONTAINERS THAT FACILITATE THE REMOVAL OF PESTICIDE RESIDUES FROM THOSE CONTAINERS. REPRESENTING GCSAA, I HAVE SERVED ON EPA'S PESTICIDE PACKAGING COMMITTEE THAT IS ADDRESSING THE MANDATES OF FIFRA 19 (G). I WOULD LIKE TO SHARE SEVERAL COMMENTS FROM MY INVOLVEMENT WITH THE COMMITTEE. WHILE GCSAA REMAINS CONCERNED WITH THE SAFE MANAGEMENT OF THE 223 MILLION PESTICIDE CON

TAINERS GENERATED NATIONWIDE EACH YEAR, OF WHICH MORE THAN HALF ARE GENERATED BY THE HOMEOWNER WHERE VIRTUALLY NO EDUCATION OR TRAINING HAS OCCURRED, WE ARE ALSO CONCERNED WITH OUR MEMBERS AND THE NEED FOR SAFER HANDLING OF THESE MATERIALS. INDEED, IN MY OPINION, OUR CONCERNS EXCEED EXISTING LAWS AS WE CONTINUE TO ENCOURAGE INDUSTRY TO FOCUS ON SAFER PACKAGING. GCSAA HAS WORKED WITH INDUSTRY TO ENSURE THAT THE MOVEMENT TOWARD BETTER AND FEWER CONTAINERS IS IMPLEMENTED. OUR EXPRESSED NEEDS FOR MORE WATER SOLUBLE PACKAGING, FOR HIGHER PERCENT ACTIVE INGREDIENT MATERIALS (WHICH MEAN LESS MATERIAL TO HANDLE), FOR MINI-BULK CONTAINERS (WHICH REDUCE THE NUMBER OF TIMES WE HANDLE THESE MATERIALS) ARE BEING IMPLEMENTED BY SOME PRODUCERS. INDUSTRY, DRIVEN IN PART BY OUR STATED NEEDS AND BUYING HABITS, CONTINUES TO LOOK FOR WAYS TO FORMULATE PESTICIDE PRODUCTS THAT ARE SAFER TO HANDLE. GCSAA WILL CONTINUE TO WORK WITH INDUSTRY, WITH THE CONGRESS, WITH EPA AND OTHER GROUPS AND WOULD URGE THE CONGRESS TO CONTINUE TO ENCOURAGE PROBLEM-SOLVING GROUPS LIKE THE PACKAGING COMMITTEE.

FINALLY, I WOULD LIKE TO ADDRESS THE ISSUE OF RESEARCH. WITH OUR STRONG EDUCATION/RESEARCH PERSPECTIVE, WE BELIEVE THAT THE ANSWERS TO THE ENVIRONMENTAL CHALLENGES FACING NOT ONLY GOLF BUT OUR ENTIRE PLANET LIE IN DEVELOPING ALTERNATIVES AND IMPLEMENTING THOSE ALTERNATIVES THROUGH EDUCATION. GCSAA, IN CONCERT WITH THE UNITED STATES GOLF ASSOCIATION, IS COMMITTED TO RESEARCH. WE WANT TO DO WHAT IS RIGHT FOR THE ENVIRONMENT -- TO THAT END, WE DIRECT OUR

RESEARCH NOT AROUND PRESERVATION OF OUR CURRENT PRACTICES BUT AROUND PRESERVATION OR THE ENVIRONMENT. OUR MOST RECENT RESEARCH IS AN EXCELLENT EXAMPLE OF THIS: RESPONDING TO CONCERNS ABOUT PESTICIDES AND GROUNDWATER, GCSAA FUNDED AN INDEPENDENT STUDY OF THE EFFECT OF TURF CHEMICALS ON GROUNDWATER. THE RESULTS OF THE TWO-YEAR STUDY, CONDUCTED ON THE SANDY, WORST-CASE SOILS OF CAPE COD, MASSACHUSETTS, REVEALED THE FOLLOWING: FIRST, OF THE SEVENTEEN TURF CHEMICALS APPLIED TO THE TEES, GREENS AND FAIRWAYS OF FOUR DIFFERENT COURSES, SEVEN WERE NEVER DETECTED IN GROUNDWATER. SECOND, NONE OF THE OTHER TEN TURF CHEMICALS WERE DETECTED AT TOXICOLOGICALLY SIGNIFICANT CONCENTRATIONS. THIRD, LOWER NITRATE CONCENTRATIONS RESULTED WHEN LESS NITROGEN, SLOW-RELEASE NITROGEN, OR BOTH, WERE USED. THE RESULTS OF THIS STUDY ARE SIGNIFICANT IN THE CONTEXT OF THIS HEARING TODAY -- WE CONTINUE TO DEMONSTRATE THROUGH SELF-FUNDED RESEARCH THAT REASONABLE CHANGES IN MANAGEMENT PRACTICES CAN MINIMIZE NITRATE CONCENTRATIONS. GOLF AND THE GOLF COURSE SUPERINTENDENT, THROUGH THE USGA/GCSAA TURFGRASS RESEARCH COMMITTEE WILL LOOK TO FUND SOLID, DIRECTED RESEARCH INTO A NUMBER OF DIFFERENT AREAS WITHOUT PREJUDICE. SPECIFICALLY, WE SEEK TO DEVELOP MORE EDUCATIONAL RESOURCES, FURTHER UNDERSTAND THE EFFECT OF TURFGRASS PEST MANAGEMENT AND FERTILIZATION ON WATER QUALITY AND THE ENVIRONMENT, FURTHER EVALUATE AND DEVELOP VALID ALTERNATIVE METHODS OF PEST CONTROL TO BE USED IN INTEGRATED TURF MANAGEMENT SYSTEMS, AND DETERMINE FULLY THE HUMAN, BIOLOGICAL AND ENVIRONMENTAL FACTORS THAT GOLF COURSES INFLUENCE. WE WILL CON

TINUE TO SHARE THE RESULTS OF THIS RESEARCH WITH THE CONGRESS, EPA AND INDUSTRY.

THE GOAL OF THE 10,000 MEMBERS OF THE GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA IS TO WORK WITH LEGISLATORS AND REGULATORS TO PROTECT THE ENVIRONMENT. WE WILL CONTINUE TO DEFINE RELEVANT RESEARCH QUESTIONS AND TO SEEK REAL ANSWERS THROUGH THOUGHTFUL, FOCUSED, SCIENTIFIC INQUIRY. WE DO NOT INTEND TO DEAL IN THE EMOTIONS OF THE MOMENT. WE WILL SPEND OUR DOLLARS ON RESEARCH AND EDUCATION. WE WILL NOT SPEND OUR DOLLARS IN THE COURTROOM CHALLENGING THE REGULATORY PROCESS. WE BELIEVE EDUCATION, PARTICIPATION AND RESEARCH WILL HELP US TO CONTINUE TO PROVIDE AND PROTECT THOSE VERY SPECIAL ECOSYSTEMS GCSAA MEMBERS SO PROUDLY CALL THEIR GOLF COURSES.

THERE IS AN OLD ADAGE IN OUR BUSINESS THAT SAYS, "WHEN YOU WALK OFF A GOLF COURSE, YOU SHOULD ALWAYS LEAVE IT A LITTLE BIT BETTER THAN WHEN YOU WALKED ON." I THINK THAT OUGHT TO APPLY TO OUR HOME BASE HERE ON EARTH AND, IN MY OPINION, THROUGH THE MEASUREAS I HAVE OUTLINED HERE TODAY, GOLF IS HONESTLY TRYING TO DO JUST THAT. I APPRECIATE YOUR TIME AND ATTENTION AND WOULD BE HAPPY TO ANSWER ANY QUESTIONS YOU MIGHT HAVE.

STATEMENT OF:
THOMAS JEFFREY DELANEY
DIRECTOR OF GOVERNMENT AFFAIRS

REPRESENTING:
PROFESSIONAL LAWN CARE ASSOCIATION OF AMERICA
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DATE: MARCH 28, 1990

My name is Thomas J. Delaney and I am the Director of State Government Affairs for the Professional Lawn Care Association of America. Before joining PLCAA I was a state pesticide regulator for 15 years and was in charge of EPA and State Certification, Licensing, and Enforcement which regulated all pesticide categories including lawn care.

Scientists have long recognized and advocated the environmental importance of lawns. Lawns are widely enjoyed and appreciated for their recreational and aesthetic values. When properly maintained, lawns cool our neighborhoods, replenish our oxygen supply, prevent soil erosion, filter dust and pollen from the air, purify water, build topsoil, reduce sunlight glare, and absorb noise pollution. In a world concerned about the greenhouse effect and protection of surface and ground waters, dense turfgrasses provide benefits far beyond their attractive appearance. In addition to these environmental values, real estate experts have found that properties with well landscaped and maintained lawns sell faster and bring higher prices.

So, it is no surprise Americans place a high value on the lawns that surround their homes and offices. In fact, the demand for quality lawns is substantial. Recent estimates indicate there are 91 million households in the United States and 68% of those participate in some form of lawn or garden care. 9% of these homeowners use a professional lawn care service.

HISTORY OF THE LAWN CARE INDUSTRY

The professional lawn care industry as we know it today is about 20 years old. Most customers of professional lawn care service have tried to maintain their lawns themselves but have given up because of the limited time, unsatisfactory results, or because they did not care to read or follow the mixing and application instructions. The industry's growth can be attributed to the advent of the double income family in the mid 1970s, coupled with the superior results that can be achieved when homeowners and professionals work together to mow, water, fertilize, and control problem pests.

The professional lawn care industry is made up of companies who range in size from the small enterprise (employing as few as 3 or 4 employees) to large public corporations and franchise operations. In many of the smaller companies, the owners participate in all aspects of their service business. Like many of you, they began earning their allowance behind the family lawn mower. Their love for outdoor activity, the beauty of the environment, and serving their neighbors led them to careers in this challenging and progressive industry.

Services to commercial and residential customers include mowing, maintenance, irrigation, aeration, seeding, landscaping, fertilization and pest control, ornamental and small tree care, and sometimes even snow plowing.

First and foremost, the lawn care industry is a service industry striving to meet the demands of our customers at a reasonable cost. The key to our success is helping our customers grow a dense vigorous lawn that resists weeds, insects and diseases. Our primary tool is proper and timely fertilization, usually four to five times per year. Weed control is used in one or two of those applications and insect control in one application, if needed.

LAWN CARE TECHNIQUES AND PROCEDURES

Integrated Pest Management (IPM) is an approach we embrace in our daily operations. Proper fertilization greatly reduces the need for pest control. We plant and encourage our customers to plant pest resistant and environmentally hardy varieties. We encourage our customers to water and mow properly, and we have expanded our service offerings to include mowing and aeration. As an industry, we have increased our use of spot treatment of problem pests in lieu of total treatment. These IPM practices have reduced our use of pest control products, but can not totally eliminate their use.

In spite of the excellent and verifiable safety record of the products currently used, lawn care professionals are constantly evaluating and urging development of new products and technologies for the turf industry. It is important to realize that lawn care companies are primarily in the lawn service business not the pesticide application business. We would prefer to avoid the use of pest control products and therefore welcome alternative approaches.

Effectiveness of currently available biological control methods remains disappointing and unacceptable to our customers. An example is the use of milky spore disease to control white grubs. Only one of a half a dozen species of white grubs can be infected with the controlling milky spore disease. With the current technology, the progression of the disease is so slow that lawn damage continues for a year or more before control is evident. Work with insect parasitic nematodes is encouraging but will require an application technology breakthrough to become a practical alternative.

Non-traditional chemicals, such as soaps and some plant extracts, like neem oil, also have inherent problems. Many soft bodied insects such as aphids can be controlled with soap or fatty acid solutions, but most problem turf insects are not susceptible to these treatments. Soap-type products for weed control kill only the weed tops and allow the roots to resprout. They also damage the turf plants which allows new weeds to sprout. Extracts of neem oil from the neem tree have only provided unpredictable control of insect pests.

Research is the key to the future of the lawn service industry. Although funding has been limited, State Land Grant programs have helped the industry to evaluate alternative methods. The turfgrass industry actively funds university research programs through the efforts of state turfgrass associations, research and education foundations, and private research grants. PLCAA's own Education and Research Foundation has recently obtained more than $150,000 in pledges to support turfgrass education and research. The Florida Turfgrass Association is conducting a fund raising program with a goal of $5 million. We would like to encourage your support of expanded Federal Funding of suburban pest control research, especially in turfgrass research, to speed the availability of effective biological and non-traditional pest control practices and to study the complexities of pesticide resistance.

Expanded private and Federal research funding is vital to a small industry like ours. We represent a very minor market for pest control products and technologies. Without such funding it is very unlikely that new technologies will be developed for our industry unless they also have major application use outside our industry. Historically, our traditional pest control products have their prime use on food and fiber crops. Many registered products are having their turf uses dropped from the label, because turf is considered a minor crop and the additional research required by the EPA is too costly. The results are fewer alternative products each year.

PRODUCT SAFETY

Safety is an integral part of the service provided to customers. Lawn care services eliminate the customer risks associated with the handling and storage of pesticide concentrates. Lawn care services deliver pest control products directly to the lawn in diluted concentrations, which are significantly lower than over-the-counter undiluted concentrates to which customers would be exposed. Professional lawn care services eliminate the need to store pest control products in the garage or under the kitchen sink where they can be a hazard to small children. Because employees of lawn care companies use these products, safety guides their choice of products and use patterns. This offers additional protection for the homeowner, because his contact with the diluted products is much lower, less frequent, or not at all.

Scientific measurement of the air our employees breathe when mixing and applying pest control products indicate inhalation exposure far below the levels shown to be occupationally acceptable by OSHA's standards. Biomonitoring of blood chemistry and urinary excretions of pesticide residues of employees, who use these products for long periods of time, has shown levels substantially below the occupationally acceptable level of exposure. A University of Cincinnati School of Environmental Health study of Chemlawn veterans with 10 or more years application experience reveals no abnormal health problems.

TRAINING AND CERTIFICATION

The proper training of employees is the single most important factor in the lawn care industry. Training is readily available in both the public and private sector, but there needs to be more. National, state, and local turfgrass and lawn care associations offer educational programs which are open to members and nonmembers alike. In addition, state pesticide certification authorities also offer educational opportunities through approved seminars and workshops. Lawn care companies use these public sector sessions to supplement their in-house, on-the-job training programs. Additionally, organizations like PLCAA provide a broad spectrum of educational materials for use within the industry. PLCAA is convinced that the industry's future will require more technically talented employees and have therefore supported efforts to improve the skills of industry trainers. PLCAA has developed and sponsored its own Training-for-Trainers program and has supported the development of a similar program by the EPA funded Public/Private Sector Initiative Working Group.

We support the certification of pesticide applicators as specified in FIFRA. PLCAA believes strongly that any future FIFRA amendments should include the following provisions: (1) Mandated state or EPA approved verifiable training for all commercial pesticide applicators applying any pesticide for hire. Those successfully completing the training should be required to register with the state pesticide regulatory authority. State mandated training should be provided by qualified instructors from USDA Extension Services, the state lead agencies, private consultants, or licensed applicators firms. (2) Two levels of training and minimum standards are necessary: (a) certified applicator's and (b) registered applicator technicians under certified supervision. (3) Amendments are also needed to mandate training for enforcement personnel and require verifiable applicator training for in-plant pesticide applicators. Such in-plant personnel (i.e., grounds maintenance workers, et. al.) are currently not covered by FIFRA applicator training requirements unless the pesticides they use are classified for restricted use.

The state of Indiana's registered technician program is a good example of a program that insures training of new technician employees.

Federal support and funding of training is needed to encourage more private sector funding. Implementation of new pesticide regulations, such as worker protection and endangered species programs, will result in additions to pesticide labeling which will require additional applicator compliance training. The University Cooperative Extension Service System is responsible for much of this training, and funding for the system must keep pace with the needs. As the regulatory mandate for training increases, funding for training programs must also increase.

LAWS AND REGULATIONS

The lawn care industry is regulated by several federal and state agencies and their laws and regulations. The Departments of Transportation, the Emergency Planning and Community Right-To-Know Act, Resource Conservation and Recovery Act (RCRA), OSHA's Hazard Communication Standard and, of course, the most encompassing, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and each states own pesticide acts.

Calls for new laws, regulations, and enforcement efforts have attracted a lot of public attention and will no doubt attract more in the future. Therefore, current data which is available under EPA/State Cooperative Enforcement Grants should be used as a indicator of any problems that may presently exist in the lawn care industry. Because all states have been granted pesticide enforcement primacy from EPA, they must investigate and report all alleged cases of misuse. For example, during the federal fiscal year 1988, New York reported to EPA 219 cases of all nonagricultural follow ups (or complaints). Seven cases resulted in fines; no warning letters were issued; and 5 civil complaints were issued. In 1989, New York reported to EPA 191 cases in that same category with 20 cases resulting in fines and 3 warning letters, and there were 18 civil complaints issued. In the state of New York, there are approximately 23,000 commercially certified applicators in the non agricultural categories. 14,000 are in the ornamental and turf category as reported to EPA. If we take into account the number of actual applications made by all applicators, it is apparent that a low number of pesticide related complaints take place. National totals from all the states indicate similar results.

Nevertheless, customers and their adjacent neighbors have a right to know about the products lawn care companies use, and we realize we must do a better job in communicating with those who want to know. Additionally, a small number of the public are claiming sensitivity to all synthetic chemicals or petrochemicals, including the products that we use in our service. These people have a right to know when these products are used on their neighbors properties. Several states maintain registries of these people and require notification to them prior to application of lawn care products. For example, Pennsylvania's statewide registry has been in operation for two years and lists approximately 200 people.

We are very concerned any time someone feels there have been adverse effects to an individual or his property. Our industry continues to work with state governments to advance the safeguards believed necessary for the public. Lawn care operators are committed to the safe use of lawn care products and are willing to work with Congress, EPA, the public, and the states to address any concerns.

Finally, of great concern to the industry are pesticide ordinances being sought at the 88,000 governmental units below the state level. Hundreds of different local requirements would be impractical and inhibit our ability to do business. The Professional Lawn Care Association of America believes in and the Federal Courts are substantiating FIFRA's preemption of local regulation of pesticides.

CONCLUSION

The lawn care industry is proud of the service it provides to its customers nationwide. We are dedicated to improving the environment and the quality of life in our communities. At the same time, we provide employment for thousands of our friends and neighbors. Thank you for giving PLCAA the opportunity to present these important facts about the lawn care industry.

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Testimony of

James F. Wilkinson, Ph.D.

Executive Director

Pesticide Public Policy Foundation

Before the

Senate Committee on Environment and Public Works,

Subcommittee on Toxic Substances, Environmental Oversight,

Research & Development

March 28, 1990

Good morning. My name is Dr. James F. Wilkinson. My education includes a BS and MS in horticulture, and a Ph.D. in turf management from Michigan State University. I have over 10 years experience in turfgrass teaching and research at both Ohio State University and within private industry. Additionally, I was the chief operating officer for eight years of a New England based lawn care company with over nine million dollars in sales and servicing 35,000 customers. Currently, I am the Executive Director of the Pesticide Public Policy Foundation, or 3PF.

The Pesticide Public Policy Foundation (3PF) is a non-profit national coalition of urban, suburban and industrial pesticide applicators working for the adoption of reasonable pesticide regulations in the lawn care, tree care, pest

control, golf course, and utility right-of-way industries. 3PF is active on a variety of urban, suburban and industrial pesticide issues at both the national and state level.

In my comments today, I'd like to address two issues. First, the seldom understood benefits provided by lawns, and second, the proactive role of the professional lawn care applicator industry in the adoption of reasonable laws and regulations at the state level to address the concerns of a few individuals over the use of lawn care products.

The lawn care, golf course and related turf industries provide tremendous benefits to the citizens and economy of the United States. In addition to the obvious aesthetic benefits of a well maintained lawn, lawns add significantly to property values, have a dramatic cooling effect during the summer months, minimize dust and air pollution, play a large role in minimizing sports injuries on athletic fields, and dramatically reduce surface water runoff compared to other urban surfaces such as asphalt. A 50'x50' turf area produces enough oxygen to meet the needs of a family of four.

Few people appreciate the size and scope of the turf industry in the U.S. As outlined in a publication from the Lawn Institute on the benefits of lawns, turf and lawn maintenance is a twenty-five billion dollar industry in the US. Five hundred thousand (500,000) people make their living directly from the care and maintenance of turf in the US. A

typical U.S. town has over 6,400 acres of turf requiring 166 professionals and thirteen million dollars annually to maintain.

Pesticides are just one of many tools necessary in the establishment and maintenance of turfgrass areas. Pesticide use on turf, by both professional applicators and do-it-yourselfers, has a long history of safety. The professional lawn care industry makes millions of applications annually without incident. Professional lawn care operators must be trained and licensed, and they use the same products available to any homeowner at their local garden store.

Contrary to what many believe, the professional lawn care operator does not utilize pesticides each time an application is made. The industry relies heavily upon proper fertilization techniques and customer education to ensure proper mowing and watering to further reduce the need for pesticides. A typical lawn care customer generally will receive no more than 2 applications containing pesticide each year. Any potential exposure, therefore, is very limited.

At the same time, the professional lawn care industry has made great strides reducing its reliance on pesticides. The industry for years has embraced the concept of integrated pest management (IPM), and IPM, coupled with new application techniques and new products, the industry continues to reduce

its reliance upon pesticides. This trend is surely to continue in the future.

Concerns over the use of pesticides on turfgrass leading to severe restrictions on their use are not warranted. The risks posed by lawn care products sometimes have been greatly blown out of proportion, and many agencies, both federal and state, are already moving to regulate lawn pesticides to varying degrees. The U.S. Environmental Protection Agency, for example, has now begun to speed up the reregistration process under the 1988 FIFRA amendments.

3PF recognizes the need for continued and strong regulation of pesticides and pesticide applicators. Unfortunately, much proposed regulation is unnecessary based upon the perception of a few people that a great risk exists from the use of lawn pesticides. 3PF is convinced that if handled according to label directions and used judiciously, the risk posed by lawn pesticides is minimal, if any, and the small risk posed is far outweighed by the benefits provided. However, as the perception of risk from lawn products is perpetuated, many states have now begun to respond to the concerns of a few people, and to develop regulations aimed at numerous turf industries, but primarily the professional lawn care industry.

Recognizing the reality of some citizen's concerns over the use of lawn pesticides, the professional pesticide

user industry has become active in the dissemination of information regarding the products used, as well as the regulatory and legislative process to develop reasonable regulations and laws to address the public's concerns.

A primary example of industry's involvement and concern over the public's perception of the safety of lawn products is the cooperation of numerous state coalitions and national associations with state regulatory officials in the development of posting and prenotification regulations. In most cases there has been excellent cooperation between regulatory officials, industry representatives and environmental groups to adopt regulations to satisfy the public's concerns, yet not overly burden the lawn care industry. Currently, posting and prenotification requirements exist in some 12 states, and industry is closely working with regulatory officials in at least 12 additional states which probably will adopt similar requirements in 1990.

Lawn care operators in these states must post a sign at the time of a pesticide application, and must prenotify customers and neighbors upon request before pesticide applications are made. Four states have now taken prenotification a step further, and have established a central registry of individuals wanting to be notified of pesticide applications. These registered individuals receive

prior notice of pesticide applications in their immediate neighborhood by professional applicators.

In regards to the prenotification issue, it is important to note two things. First, most professional applicators always have notified customers and neighbors before applications when requested to do so. It is simply a good business practice. Prenotification, therefore, generally has always taken place without the legal requirement to do so. Second, under state requirements for such prior notification, whether the request is made directly to the applicator company or through a central registry, very few people actually have requested such notification. As an example, Pennsylvania, one state which has had a central registry in place for 2 years, has no more than 200 people on the registry who have requested notification. This is despite hundreds of thousands or even millions of homeowners in Pennsylvania using the services of a professional pesticide applicator. It is interesting that so few people sign up on the registry, despite what was initially perceived as a widespread public concern. Still, 3PF and the lawn care industry feel such central registry systems are a simple but effective way to address the concerns of those citizens without overly burdening the lawn care industry.

The turfgrass industry, from professional applicators to golf courses and do-it-yourself homeowners, continues to grow

at a rapid pace. Americans are placing increased value on their homes and landscapes. While pest control products used in the home environment must be carefully selected and regulated, sufficient controls exist today to adequately protect individuals from their limited exposure to lawn care products.

TMPM315a

TESTIMONY OF
JAY J. VROOM, PRESIDENT
NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION
BEFORE THE
SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

March 28, 1990

The National Agricultural Chemicals Association represents U.S. manufacturers and suppliers of pesticides used in food production and for other agricultural purposes. We are grateful to the Chairman and other members of the Subcommittee for the opportunity to participate in this hearing because of the important link between agricultural and non-agricultural chemicals, and the potential implications of any proposed regulations aimed at the lawn care market.

Background, Industry Profile

"Non-agricultural" pesticides encompass those used on the lawns and gardens of U.S. homeowners, sold and applied by private lawn care services, used on America's golf courses, and employed in forestry, along roadsides and within utility rights of way and by other industries.

Our interest in commenting on non-agricultural chemicals is clear: The basic research, testing, registration, re-registration and prescribed uses for these products all follow the same guidelines and experience established by agricultural chemicals. In fact, nearly all products used for non-agricultural purposes had their origins in the agricultural market. That linkage, we believe, is important to keep in mind as one reviews existing regulation of lawn care chemicals, and any new legislative proposals in this area.

Pesticides for non-food production purposes are used to control such undesirable pests as weeds, insects, and plant diseases--the same functions defined for agricultural uses. Consequently, an estimated 80 percent of non-agricultural product usage is derived from products which have been tried and tested--and are currently registered--for agricultural use. The technical registrations for these products are primarily held by the basic agricultural chemical producers. They market these non-agricultural products through formulators, distributors, or commercial applicators who sell them to users. Most of these products are marketed in an urban and suburban setting, and for forestry.

Annual agricultural pesticide sales total roughly $5 billion. The non-agricultural market--which includes everything from golf courses, roadsides and nurseries to home lawns, city parks, and recreation and commercial property--accounts for approximately $1

billion in annual sales. The home consumer segment of this non-agricultural market is estimated to represent less than $250 million in annual sales.

Despite its small size relative to the agricultural market, the homeowner segment receives extensive support, education and training information from U.S. pesticide manufacturers.

Persistent Questions

The persistent questions surrounding lawn care chemicals include:

- Have the chemicals been adequately tested to ensure safety and effectiveness?
- Are applicators receiving proper training to ensure safe product use?
- Is research underway to improve the safe use of lawn care chemicals?
- Are these products needed--and what are their real benefits?

Each question is legitimate and each question is uppermost in the policies of the companies which manufacture and market lawn care products. These concerns are thoroughly examined by every pesticide manufacturer in the early stages of product research and development, and throughout the marketing and customer support system established by each company.

Have the chemicals been adequately tested?

When a pesticide is applied to residential or commercial property, that application represents the end of a significant journey on the part of the product. It is a journey which started many years earlier, cost the manufacturer hundreds of thousands of dollars annually in extensive research, and included a rigorous review and registration process by the nation's environmental watchdog, the Environmental Protection Agency.

Perhaps as significant, the applied product is but one "survivor" of an industry self-regulation process, whereby chemicals which do not meet the manufacturer's own guidelines--of environmental sensitivity, human safety, and efficacy--are eliminated before they leave the laboratory. Others are abandoned at later stages of applied research and development because they fail to pass these self-imposed benchmarks.

Pesticide manufacturers nationwide spend about $100 million each year on basic research, and an additional $5 million to $50 million per product to have these products registered or reregistered.

Clearly, today, the introduction of a pesticide into the marketplace and into the environment is the result of the most extensive scrutiny, the most intensive scientific critique and the most skeptical company analysis ever devised for a product in the American marketplace. All this occurs before EPA is asked to pass judgment on the registration of the product.

Are applicators receiving proper training to ensure safe product use?

For the most part, commercial applicators and lawn care services are privately owned and operated, or franchised and privately managed enterprises. These entrepreneurs and small business owners are providing a service which homeowners have come to demand.

The basic manufacturers who supply pesticides to these businesses have gone to great lengths to provide training and support to ensure the safe and effective use of these products. Nearly all major pesticide makers conduct regular on-site seminars or training programs for these applicators, and supplement the educational effort by supplying volumes of printed literature, elaborate and effective videotape presentations and additional support programs which are all focused on ensuring needed skills in the handling and precise timing, application and use of lawn care chemicals. These efforts also include discussion of the importance of public safety, environmental awareness and careful product usage in accord with the label. Plus, most manufacturers have a supplier support system in place to help bolster sound safety and environmental stewardship practices.

In addition, despite the proven safety of the products used, extensive attention is given to ensure absolute worker safety. If these simple training procedures are followed, there is little hazard associated with the handling or application of lawn care chemicals.

Many companies encourage and assist in training individuals to become state-certified, licensed applicators. This process ensures that those who are applying lawn care chemicals are qualified, skilled and government-certified. This effort is in the best interest of all parties--the consumer, the manufacturer, the general public and the applicators themselves.

Likewise, manufacturers have an aggressive program of working with golf course maintenance personnel, highway superintendents and recreational parks managers to encourage their personnel to receive certification as licensed applicators. Again, those who are working directly with the product, who need to know the most about it, should be receiving the best training and be subjected to the most rigorous qualification procedures. Today, that is the rule rather than the exception throughout the United States.

Manufacturers take this training and education process a step further, too, by working with editors, writers and broadcasters who specialize in reporting on lawn care

and providing consumer advice in this area. Just last week, in fact, a major manufacturer brought 50 such journalists from across the country to its corporate headquarters to talk about proper and safe use of their products. This is one of the most effective ways of reaching the home "do-it-yourselfer"--the consumer who is buying and applying general use products from the local hardware store or home center. Manufacturers go to great lengths to explain safety precautions, the intended use for the product, and the proper ways to determine whether or not the product is actually needed.

Where lawn care service firms train their own personnel, pesticide manufacturers are heavily involved in "training the trainer"--to offer complete and accurate instructions regarding the product's intended use, proper application and safety.

In most cases, manufacturers have selected employees devoted full time to the task of customer/applicator training and education. The commitment is tangible and ongoing. According to one marketing manager of a major manufacturer: "Training is the central component of everything we do as a company. For example, we spend at least two full days with each of the top 26 lawn care firms, doing nothing but training. Plus, we have about 20 videos we leave behind which are geared entirely to proper use and handling of the products." The marketing director of another firm adds: "Training is the most important thing we do. We must help applicators understand the how-to's, the do's and don'ts and the safe, appropriate use of our products. That's the lifeblood of our business survival."

Is research underway to improve the safe use of lawn care chemicals?

As mentioned earlier, virtually all pesticides available for commercial or residential use are "cross-over products"--that is, they originated and continue to serve as products designed to control harmful and destructive pests in agriculture. Consumer demand and interest in maintaining healthy lawns--free of disease, insects, and other unwanted pests--has fostered a dual purpose for these agricultural products.

But new molecules are being developed that serve only the lawn care market. New technologies are being tested and introduced to minimize the chances for user error and to eliminate adverse environmental impact.

One method being developed for practical use is a closed containment system--one which carries a pre-measured, pre-mixed, ready-to-use chemical formulation. The user simply follows instructions on how to apply the product, without any need to mix or measure.

Another method being tested is the use of refillable containers. Again, a pre-mixed formulation could be added to an application containment vessel, to help avoid the need for product mixing, but more importantly to further minimize the need for container disposal.

Research also continues in an attempt to perfect dissolvable packaging and develop containers which are virtually residue-free following product application. Again, reducing or eliminating the problem of container disposal is the objective.

The idea of refillable containers is naturally followed by the concept of dose packaging--in other words, providing pre-measured doses of product for a specific use or a specific coverage area required by the consumer. This eliminates the need for excess product being stored or disposed by the applicator or homeowner and helps ensure prudent use of the lawn chemicals.

Another revolutionary procedure--called controlled droplet application -- provides users with a new kind of application device. The device is self-contained, has a pre-mixed, ready-to-use chemical formulation and applies the chemical in uniform, relatively large droplet size to virtually eliminate the problem of product drift. This technology is already in use among several pesticide marketers and has been well received as a convenient and safe alternative to conventional practices. Primary users so far are golf course maintenance personnel, lawn care service firms, commercial nurseries, city park and municipal recreation facilities and state highway departments. The application device is currently being adapted for industry-wide use with a number of different chemical compounds.

A research area which provides great promise--and has already produced results --is the development of products which can achieve their intended purpose at extremely low concentrations of active ingredients. One such product, currently being considered for registration, is a pre-emergence crabgrass herbicide which, if it replaced all current pre-emergence grass herbicides, would reduce by 90 percent the pounds of active ingredients applied for such turf grass uses in the United States today, according to the manufacturer. By reducing the amount applied of active ingredients, manufacturers are developing products which continue to be both highly effective and environmentally safe.

Today, manufacturers are also making significant strides in the area of diagnostics --that is, identifying the precise lawn care problem or need and crafting a prescription program which prevents over-treatment or mistreatment. These improved diagnostic programs, involving state-of-the-art detection and identification kits, go a long way toward enhancing our targeted use of available technology.

Finally, pesticide manufacturers are among the leaders in research to discover useful biological controls that can substantially reduce the need for traditional chemicals. These alternatives are among the new frontiers being explored as an integral part of research and business development activities.

In all these research efforts, environmental and human safety is the key concern, whether it involves the particular product formulation, the packaging or the very molecule itself.

Are these products needed--and what are their real benefits?

The consumer's preference for a healthy, aesthetically pleasing lawn probably ranks near the top of the homeowner's list of reasons for purchasing lawn chemicals or hiring a lawn care service firm. Homeowners, commercial developers and property managers are not willing to endure lower property values due to a lawn cluttered with unsightly weeds, such as crabgrass, or infested with damaging insects, such as grubs, or infected with spreading diseases, such as brown patch. For most property owners, a picturesque lawn is a symbol of how well we care for our home and property. It is a source of pride, a symbol of a quality living environment, and an added means to safeguard--and enhance--the value of these home/property investments.

But, there are other benefits beyond aesthetics and commercial value--benefits which are equally important but often unrecognized. Lawn insecticides greatly contribute to the protection of human health by warding off potentially harmful bugs, such as ticks, mosquitos, fleas, ants and roaches.

Lawn care chemicals prevent the spread of plant diseases which take their toll on far more than lawns. Shrubs, trees, ornamentals and other growing plants are all susceptible to many of the same soil-borne diseases that affect lawns.

In some areas, a healthy, green lawn or weed-free property also reduces the risk of fires which can occur due to the presence of dried weeds or grasses. Again, by preventing the risk of fire, a vigorous, growing lawn helps defend homes and properties from needless loss.

Control of soil erosion, reduction of runoff, and flood control are also important components of strategic care for lawns and high-value turf among residential and commercial properties. Healthy lawns--unrestrained by competing weeds, invading insects and damaging diseases--develop an abundant root system which holds soil particles tightly in place. A strong root system greatly diminishes the chance of erosion and helps keep applied chemicals, plant nutrients and topsoil where they belong.

Finally, there are additional indications that healthy, thriving turf grass substantially improves our environment by consuming carbon dioxide and producing oxygen. It is estimated that a vigorous yard, measuring 50 feet by 50 feet, creates enough oxygen for a family of four for one full day. Plus, the well documented cooling effects of a healthy lawn are obvious on sweltering summer days.

Conclusion

Clearly, lawn care products--many of which have stood the test of time and scrutiny in our food production system -- are not only wanted but needed to maintain the quality of life we have come to demand in this country. It is the obligation and

desire of major U.S. pesticide producers to fulfill this need by researching, testing, and supplying products which are proven to be safe and effective. The industry has assumed the primary leadership role in helping assure that its products are handled and applied in a manner which ensures no adverse effects to human health or the environment. By working as partners with lawn care service firms, pesticide manufacturers have persistently maintained this ethical standard.

The continuing, diligent and costly research efforts of manufacturers is added illustration of their desire to further enhance the quality of our lives and our environment. If a new technology can be adopted to improve or replace an existing lawn care practice, pesticide makers are eager to embrace it, because these companies are, in fact, the pioneers of this cutting-edge technology.

As always, the National Agricultural Chemicals Association's staff and members welcome additional opportunities to respond to questions or provide any information which might be useful to the subcommittee. Again, we appreciate the chance to participate in this hearing.

TESTIMONY BEFORE THE SUBCOMMITTEE ON TOXIC SUBSTANCES

ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

MARCH 28, 1990

ROGER A. YEARY

COMMERCIAL AND RESIDENTIAL SERVICES DIVISION

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

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TESTIMONY BEFORE THE SUBCOMMITTEE ON TOXIC SUBSTANCES,
ENVIRONMENTAL OVERSIGHT, RESEARCH AND DEVELOPMENT
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ROGER A. YEARY
COMMERICAL AND RESIDENTIAL SERVICES DIVISION
CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION
WASHINGTON, D.C.

My name is Dr. Roger A. Yeary. I am Vice President for Health and Safety for the ChemLawn Services Corporation. I am appearing on behalf of the Chemical Specialties Manufacturers Association (CSMA) where I serve on the Executive Board of the Commercial and Residential Services Division.

CSMA has a membership of more than 400 firms engaged in the manufacture, formulation, distribution, and sale of home, lawn and garden pesticides, antimicrobial products, automotive chemicals, detergents and cleaning compounds, and polishes and floor finishes for household, institutional and industrial use. The Commercial and Residential Services Division includes manufacturers, formulators and users, of lawn care products.

In preparing this testimony it was our belief that the Subcommittee would be presented with recommendations taken from the Public Citizen Report entitled, "Keep Off The Grass", which was released in April, 1989. We do not intend to take the time of the Subcommittee to present a detailed critique of the Report except to state that it is unauthoritative, inaccurate and misleading. However, we wish to respond to the six recommendations for federal action.

Public Citizen Recommendation

1. "The EPA should ban the use of lawn care pesticides that are suspected of causing cancer in humans."

CSMA Response

EPA has authority to prohibit or limit uses of pesticides which pose unreasonable adverse effects on the environment but this position would go beyond the evaluation of an unreasonable risk and advocates a zero risk threshold for registration. The Environmental Protection Agency and the Food and Drug Administration are entangled in the web of the Delaney amendment to the Federal Food, Drug and Cosmetic Act which ignored the extrapolation of the results of tests in

laboratory animals for carcinogenesis and the relevance of this data to the risk of human cancer. In the view of the uninformed, any substance that produces tumors of any kind in any species of animal is suspected of causing cancer in humans though there is no basis in human experience to support this presumption. Both the International Agency for Research in Cancer and the Environmental Protection Agency, in recognition of the limitations of interpretation of carcinogenicity studies in laboratory animals, use a weight of evidence approach as opposed to a zero risk standard in classifying chemicals that are carcinogenic in animals according to broad descriptions of human risks. A risk-based approach to the regulation of chemicals cannot be avoided since all chemicals have health risks at some level of exposure.

This issue of cancer risk from lawn care chemicals is not different from the cancer risk of other chemicals in terms of the principles of risk assessment. It is clearly within the present authority of the Environmental Protection Agency to cancel or suspend the registration of any chemical which presents an unreasonable risk. We

support the Agency and legislative efforts to more succinctly define unreasonable adverse effects in terms of negligible risk in regulating chemicals that are carcinogenic in tests in laboratory animals, recognizing that zero risk is scientifically and practically untenable.

Public Citizen Recommendation

2. "Congress should require lawn care companies to provide customers with government information on the known and potential health effects of lawn care pesticides."

CSMA Response

Firstly, this recommendation is an attempt to stigmatize lawn care services by singling out this industry from among all other businesses that use chemicals in providing services to customers. Secondly, the intent is to imply that lawn care services present a special or unusual hazard. This certainly is incorrect and misleading. A requirement that lawn care companies provide customers with "government information" on pesticides is a labeling issue. Consumer products are subject to labeling requirements by the Consumer Product Safety Commission, the Environmental

Protection Agency and the Food and Drug Administration. To date, none of these agencies have found value in providing detailed, scientific, or technical information concerning known and potential health effects on the labeling of consumer products. Not only is this impractical in labeling of many containers but, more importantly, low levels of reader comprehension undermine the effectiveness of such labeling.

The EPA has been examining the effectiveness of pesticide labels in a label improvement program. According to an EPA Draft of a report on the Pesticide Label Utility Project (1986), "behaviorists believe that persons can comprehend a maximum of eight discrete items simultaneously and attention fluctuates every four to five seconds. Therefore, it is important that information be simple, clear and concise so it can be comprehended by the user."

It is unrealistic to expect consumers to make complex risk assessments from information on product labels or in other

information and it is for this reason that agencies such as the EPA are gatekeepers to product availability.

At least one state has required lawn service companies to provide copies of pesticide labels to customers. However, since many, if not most of the products are diluted before use, the pesticide label is misleading as applied to the end-use dilution.

We believe that product labeling should be clarified to distinguish precautionary statements for persons mixing and loading pesticides from precautionary statements applicable to end-use dilutions of lawn care chemicals.

We are faced with a hodge-podge of local and state initiatives which confuse right-to-know issues with pesticide labeling. The lawn care service industry has not objected to reasonable posting requirements on a state level. However, extensive product labeling to include posting or customer labels should preempt local governments from independent regulation.

Public Citizen Recommendation

3. "Congress should ensure that federal agencies take decisive action against lawn care companies that make false or misleading claims about the safety of their products."

CSMA Response

In July, 1989, the Federal Trade Commission prepared a brochure for consumers entitled, "Lawn Care Contracts" which addressed the lawn care safety issue. One state has filed claims of false and misleading advertising. The disputed facts are before the court but, as of this date, have not been adjudicated.

Public Citizen Recommendation

4. "The EPA should conduct a comprehensive exposure study for all lawn care chemicals, speed up testing for neurotoxic effects of all pesticides and their inert ingredients, and take regulatory action to protect consumers."

CSMA Response

We support exposure studies for lawn care chemicals. The lawn care industry has exposure data for its workers and logic would presume that its customers and their neighbors have significantly less exposure. The lawn care industry will cooperate with the EPA as it has cooperated with pesticide

manufacturers in studies of pesticide exposures from the application of lawn care chemicals. In the absence of exposure data, the EPA has defaulted to the worst case scenario assumptions in performing risk assessments of several lawn care chemicals. This clearly overstates the risk. However, because lawn care chemicals are applied by comparable techniques, it is not necessary to conduct such studies on all lawn care chemicals since surrogate models of exposure may be used to perform risk assessments.

It is implied that lawn care pesticides are not tested for neurotoxicity nor do other toxicity tests reveal evidence of neurotoxicity. This is not true. All cholinesterase-inhibiting insecticides have been tested for delayed neurotoxicity for many years.

Furthermore, neurotoxic effects such as convulsions, blindness, ataxia, and paresis or paralysis are detectable in the toxicity tests that have been employed for the past 30 or 40 years. Progress has been made in the design of animal tests for behavicrial effects

of chemicals. It is our understanding that the EPA is developing guidelines for neuro-behavioral testing which eventually will be incorporated into the registration process.

Public Citizen Recommendation

5. "Congress should appropriate additional funds for programs that promote the use of Intergrated Pest Management, a system which relies on the least toxic methods of pest control."

CSMA Response

We fully support the concepts of Integrated Pest Management. Integrated Pest Management does not mean that pesticides are not employed in such programs. The lawn care industry strives to improve the quality of neglected lawns and to maintain the quality of well-cared-for lawns. In this process we encourage the use of good cultural practices in fertilization, mowing, and irrigation which reduce the need for chemical control of weeds, insects and diseases. An example of these recommendations is shown in a homeowners' guide on lawn care which is attached as an exhibit.

Public Citizen Recommendation

6. "Congress should replace the risk/benefit

analysis currently used by the EPA with a health-based standard."

CSMA Response

This recommendation presupposes that there can be a clear distinction between risk assessment and the benefits from use of chemical substances. Surely, we have learned by now the paradoxical effects of the Delaney amendment. Risk assessment is futile unless there is established a reasonable standard of acceptable risk. It is difficult to perceive how one can determine acceptability of risk without consideration of the benefit. Certainly, one cannot seriously promote an unattainable and virtually immeasurable goal of zero risk.

Conclusion

The recommendations of the Public Citizen's Report raises issues that are clearly within the current regulatory authority of the EPA or other regulating agencies. As in the past, CSMA and its membership will work with all agencies through the regulatory process.

Thank you for the opportunity to appear before the Subcommittee. I will be pleased to respond to any questions concerning the lawn care industry.

STATEMENT OF THE CHEMICAL PRODUCERS AND DISTRIBUTORS ASSOCIATON

BEFORE THE

SUBCOMMITTEE ON TOXIC SUBSTANCES, ENVIRONMENTAL OVERSIGHT,
RESEARCH AND DEVELOPMENT
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

MARCH 28, 1990

Mr. Chairman, members of the Subcommittee, thank you for the opportunity to speak to you today on the issue of lawn care chemicals. My name is Warren E. Stickle and I am President of the Chemical Producers and Distributors Association.

Accompanying me today is Mr. Ron Mau, of Howard Johnson's Enterprises, Inc., a CPDA member company based in Milwaukee, Wisconsin. Mr. Mau's company is a formulator of retail and commercial turf fertilizers and pesticides.

CPDA is a non-profit, voluntary membership association comprised of some 70 member companies engaged in the manufacture, formulation, distribution and sale of $3-billion worth of products used on food, feed and fiber crops, and for lawn, garden and turf care.

I would like to take a few moments today to discuss several lawn care chemical issues, including 1) the benefits of lawns, 2) the testing of lawn care chemicals, 3) the impact of the 1988 FIFRA amendments on the reregistration process at EPA, and 4) several related FIFRA issues important to the lawn care chemical industry.

The Benefits of Lawns

Too often we think of lawns only for their green "carpet" effect or some other aesthetic value. We at CPDA would like to take a moment to mention a few benefits of lawns.

Lawns hold the soil in place and prevent wind and water erosion. On playgrounds and sports stadiums, turf grass turns a bare, dusty and sometimes muddy surface into a green cushiony surface with much physical and aesthetic appeal for sports and recreation. It also minimizes sports injuries, as any comparison of grass and artificial surface.

Grasses, like conventional food crops, need soil and water for growth. And during photosynthesis, they both manufacture food from carbon dioxide in the soil, air and water, and release pure oxygen.

It is also important to note that our lawns absorb heat from the sun and really help to cool our environment on hot summer days. Grass also absorbs dust, dirt, and other impurities in the

air and consequently cleanses our environment. Lawns and grasses often act as a "cover" crop that minimizes surface run off especially compared to urban asphalt parking lots.

As a licensed real estate salesman with more than ten years experience, I can assure you that lawns add to the aesthetic value of residential property and traditionally have increased the real value of improved property. Americans are increasingly looking at the benefits of their lawns and landscapes.

Benefits of Lawn Care Chemicals

We in the lawn care industry are opposed to indiscriminate use of or over application of fertilizers and pesticides. Additionally, we believe strongly in training programs so that applicators can properly identify, diagnose and treat weeds, insects or disease. We believe in licensing and certification of all who supervise or make the applications. With regard to indiscriminate use, believe me, economics prohibit that neither a lawn care company or golf course "dump" products. Corrective/spot treatment programs are very common, whether it is for weeds, insects or disease. You would be hard-pressed to find a company guilty of making broadcast applications of any pesticides unless warranted by a wide-spread problem.

The products used by our industry are being judged each day by university researchers, manufacturing companies, lawn care firms and by the consumer. Changes are a part of this industry, as they are with any industry (we have moved past the days of the model-T). I can tell you that product selection changes are being made simply by looking at sales figures. For example, a more selective insecticide with much shorter residual has increased in sales by over 300% over the past three years, some evidence of self-imposed stewardship.

We are continually looking at ways to improve our turf grass program. We encourage soil testing so as not to over or under apply fertilizers, but rather to apply the correct amount. It is not a guess. Nutrients will be utilized by the growing plant and not subjected to the potential of run-off. Additionally, recent work at Cornell University indicates that leaching is minimized in healthy turf. Likewise, the percent of organic matter information helps to determine pesticide application rates for maximum utilization.

The turf grass industry is pro-active and is working towards improving our environment. These people pursue quality turf for a variety of reasons:

1. Less erosion. Healthy turf does reduce run-off, which saves water, plant food nutrients and pesticides.

2. Healthy turf is cleaner, quieter, cooler and returns oxygen to the air.

3. Healthy turf on sports fields and park areas reduce the risk of injury to those who use same.

4. Healthy turf is conducive for backyard play, picnics and other family outings -- these activities are tough to conduct on asphalt and concrete.

5. Healthy turf can recover from heavy traffic and use, thereby maintaining its curb appeal and value.

6. Healthy turf encourages wildlife.

7. Healthy turf discourages pests.

We in the lawn care industry need fertilizers and pesticides to help maintain this turf quality. We subject our turf to some rather harsh wear and tear with maintenance programs that are sometimes suspect. Without proper nutrition, grass cannot recover as it should and, certainly, will not withstand the traffic. It becomes easy for weeds to take over. Incidentally, after hundreds of tissue sampling, I have seldom, if ever, found a weed to be deficient in nitrogen. The weeds utilize the nutrients and the problem gets worse. In a matter of time, all you have are weeds.

Testing of Lawn Care Chemicals

Despite the claims that lawn care chemicals are "suspected human carcinogens" or cause health hazards, nothing could be further from the truth.

Others claim that lawn care products are untested, with extensive data gaps; but, there are not huge data gaps on the most commonly used lawn care products.

Most lawn care pesticides are more fully utilized on food crops. In fact, of the 35 most widely-used major lawn care pesticides, 29 are also registered for food or feed uses (see Appendix A). As a result, these products must undergo extensive testing including sub-chronic and chronic toxicity testing at the federal level, and must meet special state registration requirements in California as well.

Most of these products have a long record of common usage, with a safety record of no adverse health effects. There should be no cause for public concern about the health effects of lawn care chemicals.

Claims about "suspected human carcinogens" are bogus since this classification doesn't exist in EPA's carcinogen classification system. Neither EPA nor California's Department of Food and Agriculture nor any other states has any data to prove that any lawn care chemicals are a human carcinogen.

The EPA conducts a thorough evaluation of all lawn care chemicals as part of the registration and reregistration process. Lawn care pesticides fall under the category of terrestrial non-food use. To evaluate the toxicity of a particular product, the EPA requires the following data:

Acute oral toxicity -- rat
Acute dermal toxicity -- rabbit
Acute inhalation toxicity -- rat
Primary eye irritation -- rabbit
Primary dermal irritation -- rabbit
Dermal sensitization -- guinea pig
Acute delayed neurotoxicity -- hen (only for organophosphates or compounds structurally related to substances that cause delayed neurotoxicity)

EPA uses this data on the acute effects of lawn care pesticides to evaluate potential hazards that may be associated with short-term or intermittent exposure that might result from their use. Pesticides that are highly acutely toxic are not registered for home lawn use.

The above list of requirements are really minimum toxicity requirements, but EPA reserves the right to require additional studies such as oncogenic, teratogenic, and subacute dermal and inhalation data.

The EPA has not routinely required chronic toxicity data to evaluate potential hazards since exposure to lawn care pesticides is infrequent and does not occur on a routine basis over long periods of time. As previously stated, the Agency does have extensive data bases on these chemicals since a majority are used on food or feed crops as well.

1988 FIFRA Amendments

More importantly, the passage of the 1988 FIFRA amendments contain extensive provisions providing for the reregistration of all pesticide products, establishing the highest priority for food use products (which are used essentially for lawn care applications). During this nine year program, the EPA has made a commitment to review all pesticides, to determine what data gaps exist, to require the testing to fill those gaps, and to respond to any concern that the Agency has.

Producers, formulators, and distributors of lawn care chemicals have made a commitment to support this reregistration process, by contributing about $170 million in the form of reregistration and maintenance fees. We at CPDA believe that the completion of this reregistration process will help, in part, to restore the public's confidence in the EPA and its evaluation of pesticides.

The reregistration process will pay particular attention to old chemicals that have been on the market for 20 to 30 years, and that are frequently used for lawn care application. Consequently, the EPA's reregistration of lawn care chemicals will specifically answer many of the unfounded claims that have been raised in the last few years, and place an emphasis on fact-based, scientific data, rather than fears and emotions.

Lawn care chemicals are safe and effective, when utilized according to label instructions. More often than not, problems, if they occur, result from the misuse or misapplication of a particular product. Consumers, especially homeowners and do-it-yourselfers, need to take sufficient time to carefully read the label and its various instructions. We at CPDA believe that the label information could be further reduced in size and streamlined in ways to make them more easily understood by the general public.

FIFRA Related Matters

We at CPDA would like to comment on several related issues concerning the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), including:

A. Accelerating the cancellation and suspension of pesticide products;

B. Reclassification of diazinon;

C. Coordination and synchronization of pesticide data requirements among the states and EPA; and,

D. States political subdivisions should not regulate the sale and use of pesticides.

A. Cancellation and Suspension of Pesticides

During the continuing discussion about food safety legislation (H.R. 1725 and H.R. 3292, and other bills) in the 101st Congress, the process and procedures by which the Environmental Protection Agency cancels or suspends a product is at the heart of the call for food safety reforms. These efforts to amend FIFRA affect food use chemicals, but also affect all pesticides, including non-agricultural pesticides, and lawn care chemicals. We would like to take a few moments to discuss these bills since they have important ramifications for lawn care chemicals.

Cancellation

We support the Environmental Protection Agency's need to move quickly to remove problem pesticides from the marketplace, especially since the process includes the special review process (Informal Rulemaking), the cancellation hearing, and finally, judicial review in the courts.

We also agree that the experience of the last fifteen years has clearly demonstrated that the cancellation process has taken too long, with some products taking more than a decade to remove from the market place. The average has been five years and this length of time is still too long.

While CPDA supports an effort to abbreviate the regulatory process, we must keep in mind the need for an adequate scientific review of the salient issues: Is the hazard information correct? How much exposure is there to the pesticide? What is the most appropriate way to reduce the risks?

The right to request a hearing to challenge the Agency's determinations and the right to cross-examine all expert witnesses, however, remains some of the most sacred protections afforded by FIFRA to pesticide producers and users. Adjudicatory hearings enhance the ability to elicit scientific data, and are basic to developing findings of fact. The hearing goes to the core of affording due process, procedural and substantive.

Legislation introduced in the 101st Congress (H.R. 3292) seeks to amend Section (6) of FIFRA by replacing the adjudicatory hearings with informal rulemaking.

The right of a pesticide registrant or user to examine EPA's proposed restrictions in a cancellation hearing is one of the major strengths of FIFRA. This procedure allows those who have invested time and money in registering a pesticide, and those who depend on the pesticide to protect their property, to examine the scientific basis for EPA's proposed restrictions. This process is the best method in any environmental law for assuring a proper, scientifically sound, decision.

These legislative proposals would add a new "informal rulemaking" as an alternative to a cancellation hearing allowing EPA to impose pesticide restrictions without permitting interested parties to go to a cancellation hearing. In short, EPA could go through an "informal rulemaking," impose restrictions on a pesticide and neither the registrants nor the users would have an opportunity to dispute them in a cancellation hearing, or cross-examine witnesses.

In essence, without a guaranteed right to a hearing or cross-examination, the pesticide registrant and pesticide users would not be very well protected. In fact, there may not even be sufficient information available to prove that an evidential discussion was even held, thus making it very difficult for the U.S. Appeals Court, under FIFRA's judiciary review provisions, to get a de novo review because the record is incomplete.

We believe it is possible to speed up the cancellation timetables so that they are less than two years, while still protecting the basic rights of pesticide registrants and users to participate in a hearing, and cross-examine witnesses.

Suspension

There is no need to change the suspension provisions of FIFRA, since no one has clearly demonstrated that the current suspension authority has not worked. In fact, suspension authority has only been utilized three times in the last twenty years. Other factors such as the escalating data requirements, the considerable care in registering products, the comprehensive reregistration of all products, including old chemicals, and the use of means short of suspension, are really working.

Suspension is an emergency procedure that advocates for change would like to see misdirected to non-emergency matters. In an atmosphere of fear and emotion, it may be difficult to achieve reasonable and practicable solutions with accurate, scientific, fact-based decisions. An "easier" suspension authority would subvert the cancellation process by encouraging EPA to use the "path of least resistance."

We at CPDA believe there are four compelling reasons not to change the suspension provisions of FIFRA:

First, legislation pending in both the House and Senate contain language that completely restructures the cancellation procedures, and expedites the process, making it much easier to get a problem chemical off the market.

Second, the passage of the 1988 FIFRA "Lite" amendments contained an indemnification process which passed most of the financial burden to the registrant, thus removing a remaining requirement that EPA indemnify pesticide owners for losses incurred by taking a product off the market.

Third, under Section 6 (c), the Administrator has enormous existing powers within FIFRA to utilize emergency procedures to suspend a product without prior notice, hearing or delay, to immediately stop the sale and use of a dangerous pesticide, if there is an imminent hazard.

Fourth, no one, not even EPA, has made a case that the existing suspension authority has not worked properly, and needed to be "fixed."

Changes in the FIFRA suspension provisions could also have several important disadvantages:

1. It would encourage action based on glamorous appeals of movie stars and pressure groups, on "sound-bite" journalism, and not on scientific facts.

2. Suspension, even if temporary, or for a short time, without an opportunity for a public hearing or a fact-based decision-making process, will effectively destroy the product and its public credibility.

3. Modified suspension authority will cause a sudden loss of valuable pesticides, resulting in unexpected losses to farmers and ranchers, perhaps even including crops yet to be harvested.

4. Agrichemical producers, distributors, dealers and users will be exposed to costly and unexpected economic losses, resulting in unacceptable business risks to registrants who are deciding on future research investments.

5. Insistence on suspension amendments will block progress and further compromise on other FIFRA amendments, will unnecessarily increase litigation, will undermine the risk vs. benefit evaluation in FIFRA, and will stimulate the EPA's desire to "act without facts."

In summary, we favor expediting the cancellation process so that we can remove problem chemicals from the marketplace in a timely manner. Conversely, we oppose any changes in the suspension provisions of FIFRA as unnecessary and unneeded.

B. Reclassification of Pesticides by EPA

During 1989, EPA attempted to utilize the registration standard as a means of reclassifying all FIFRA Toxicity Category I and II diazinon products from general to restricted use. It would have reclassified diazinon homeowner products with

"Warning" or "Danger" signal words as restricted use, requiring that their sale or application of use be restricted to certified applicators.

We at CPDA met with EPA registration personnel to argue that such a reclassification would have a severe impact on the entire consumer pesticide industry, and could have established a precedent for numerous other consumer products or lawn care chemicals or disinfectants and sanitizers.

In the December 1988 Diazinon registration document, EPA makes reference to a high number of incidences of diazinon poisonings in the general population. Yet, the Agency cites only one hospital survey in which 61% of the incidences of poisoning were allegedly related to the residential use of diazinon.

Data gathered by the American Association of Poison Control Centers (AAPCC) from 1985 through 1987 and originally published in the American Journal of Emergency Medicine, however, do not support the notion that poisonings associated with homeowner use of diazinon are reaching epidemic numbers. According to AAPCC, of a total of 1,131 fatal exposures reported during this 3-year period for all types of substances, only 4 involved diazinon. Moreover, a closer look at the AAPCC figures shows that each of these fatalities occurred not as a result of normal application of the product but rather resulted from intentional ingestion of diazinon in deliberate suicide attempts.

The reason that most diazinon products are classified in Toxicity Category II is due to eye hazard caused by solvents and emulsifiers. Under FIFRA, EPA has the authority to prescribe labeling which would require the use of eye protection during mixing and loading. Such labeling would reduce or eliminate potential eye hazard, thereby eliminating the need for a restricted use classification.

We urged the Agency to consider the far-reaching ramifications of proceeding with its reclassification proposal. The home, lawn, and garden and turf industries would have suffered tremendous economic hardship as their products were removed from the shelves and banned for sale to the homeowner.

In addition, consumers would have been denied access to many important and valuable products which, according to the available data as cited above, have not been shown to be associated with significantly high rates of systemic poisoning.

In short, information collected and sent to EPA by registrants demonstrates that these products do not pose a significant risk of irreversible systemic effects or eye damage occurring among people using these pesticide products in accordance with proper application methods and precautions as directed on the labeling. Such precautions, as discussed above, would include use of appropriate eye protection as required by product labeling.

Finally, we at CPDA told EPA personnel that if the Agency remained intent on pursuing this ill-advised proposal despite the evidence that reclassification of these products is unwarranted, such action should be approached as a formal notice of proposed rulemaking under the provisions of Section 3(d) (2) of FIFRA. As such, registrants would be given 45 days advance notice of the change, announcement of EPA's proposal would have to be published in the Federal Register, and, any affected company would have the opportunity to request a hearing on the matter.

EPA finally agreed tnat it was inappropriate to restrict the use of a residential pesticide in Category II solely because of eye or skin irritation. It was concluded that avian exposure is not enough to warrant restrictive use at this time.

Diazinon is a broad-spectrum pesticide widely used to control a variety of insects on agricultural acres, ornamental nursery sites, and for home, lawn and garden use. In March, 1988, EPA cancelled all diazinon uses on golf courses and sod farms due to the deaths of migratory and non-migratory waterfowl, song birds, shore birds, wading birds, and others. Many of these birds ingested diazinon granules.

The decision eliminated about 512,000 pounds used on golf courses and 60,000 pounds used on sod farms. The administrative law judge concluded, however, that the continued use of diazinon outweighed the risks to avian species. Ultimately, the EPA process resulted in prohibiting the use of diazinon on golf courses and sod farms, while not reclassifying it for restricted use.

C. Coordination and Synchronization of Pesticide Data Requirements Among States and EPA

We at CPDA strongly support legislation that would facilitate an increase in coordination and synchronization between the various states and the U.S. Environmental Protection

Agency. Legislation to achieve these goals was introduced in the 100th Congress (H.R. 2869, the Pesticide Data Coordination and Synchronization Act of 1987) by Congressmen Steve Gunderson (R-WI) and Pat Roberts (R-KS).

In 1984, California passed S.B. 950 to require the filling of pesticide data gaps, for all products, including lawn care chemicals. To implement this law, the State adopted a definition of a "data gap," created a list of tests that need to be completed, and established a detailed timetable for filling these data gaps. The state legislature, however, did not take into consideration the attempt of the Congress to create their own reregistration timetables in FIFRA amendments passed in 1988, and signed into law on October 24, 1988. These amendments, called FIFRA "Lite," were also designed to fill these same data gaps. This is a new and growing problem. Several states are now considering such legislation and Arizona has followed California's example.

"In essence," remarked Representative Gunderson (R-WI) (Congressional Record, July 1, 1987, E 2740), "in attempting to establish their own expedited reregistration programs to fill data gaps, the states actually will establish agendas and timetables which will duplicate and even conflict with the federal requirements."

"...It is critical," concluded Rep. Gunderson, "that data requirements among the states and EPA be coordinated and synchronized so that only one set of data needs to be generated within the same timeframe."

"Unnecessary, repetitive and redundant testing not only consumes valuable time and resources, but also delays the closing of data gaps," Congressman Gunderson noted.

Coordination and synchronization legislation would help reduce the cost of pesticides, including lawn care chemicals, eliminate duplicative and unnecessary testing, expedite the closing of data gaps and make sure that pesticides for farmers and consumers, especially minor use products, will be available wherever needed.

D. State Political Subdivisions Should Not Regulate Sale and Use of Pesticides

During the decade of the 1980's, pesticide regulation, by local political subdivisions has sparked a controversy from one location to another, and has frequently centered on the notification of use of lawn care pesticides in cities, towns, townships, counties and other local municipalities.

At the heart of the controversy is whether or not FIFRA Section 24 (A) preempts a local political subdivision's right to regulate the sale and use of pesticides, including lawn care chemicals and other pesticides.

During the 100th Congress (July 22, 1987), Senators John Chafee (R-RI), David Durenberger (R-MN), and Robert Stafford (R-UT), introduced S. 1524, entitled, The Authority of Local Governments Under FIFRA, to enable local political subdivisions to regulate the sale and use of pesticides, including the notification of use of pesticides. We at CPDA opposed this legislation then, and we oppose any attempt to pass similar legislation in the 101st Congress.

We support the decision of the U.S. Court of Appeals for the Fourth Circuit when it ruled on June 16, 1987, in the case of the Maryland Pest Control Association versus Montgomery County, Maryland, that FIFRA preempts and invalidates local action to regulate the sale and use of pesticides.

Under Section 24 (A) of FIFRA, Congress extended limited pesticide authority to the states to regulate the sale and use of pesticides. The legislative history clearly demonstrates that Congress did not want to share its authority with local jurisdictions.

When the Senate Committee on Agriculture passed its FIFRA bill in 1972, its accompanying committee report concluded:

> The Senate Agriculture Committee considered the decision by the House Committee to deprive political subdivisions of states and other local authorities of any authority or jurisdiction over pesticides and concurs with the decision of the House of Representatives. Clearly, the fifty states and the federal government provide sufficient jurisdictions to properly regulate pesticides. Moreover, few, if any,

> local authorities, whether towns, counties, villages or municipalities, have the financial wherewithal to provide necessary expert regulation comparable with that provided by the state and federal governments. On that basis and on the basis that permitting such regulation would be an extreme burden on interstate commerce, it is the intent that Section 24, by not providing any authority to political subdivisions and other local authorities of or in the states, should be understood as depriving such local authorities and political subdivisions of any and all jurisdiction and authority over pesticides and the regulation of pesticides. 3 U.S. Code Cong. & Ad. News, page 4008 (1972).

At about the same time, the Senate specifically rejected an amendment that would have allowed local political subdivisions such as cities, towns, counties, etc., to regulate the sale and use of pesticides. The vote was 71-0. Despite this explicit legislative history, there have been, during the 1980's, many political subdivisions of a state that have attempted to exercise regulatory authority.

Local jurisdictions have been enacting restrictions on pesticides that create considerable hardships on farmers, ranchers, foresters, homeowners, pesticide users and manufacturers. These jurisdictions are, in effect, denying the pesticide user -- and the public -- the benefits of pest control.

We oppose granting local political subdivisions the authority to regulate the sale and use of pesticides for the following reasons: First, local jurisdictions simply are not equipped to make the scientific and regulatory decisions required to validly regulate pesticides. When regulations are based on fear, hysteria and other unscientific grounds, the resulting loss of benefits is unwarranted. Second, we question the need for local jurisdictions to regulate pesticides. What risk uncontemplated by EPA or the State Agency does the local community want to protect against? What risk goes unprotected except for local notification ordinances? And what is the magnitude of that risk? Have EPA and the states been negligent in not identifying and reducing this risk? Third, we believe that the legislative history is clearly written to explicitly reject local regulation of pesticides. Fourth, we oppose local jurisdictions regulating the notification of use of pesticides in both urban and rural settings. These regulations should be established at the state level.

Notification can take many forms. One county in a New England state contemplated a "notification" regulation which would have required persons dusting their roses to notify everyone within a half of a mile before doing so. Does notification include prior notification, post notification, personal notification, or notification by publication? Then the question arises as to who is to be notified: those immediately adjacent or everyone within a certain radius? Consider, for example, an apartment dweller wishing to spray for any common pest; who must that person notify?

The broad definition of pesticide adds to the potential breadth and confusion. It could require people to post a notice if they sprayed for household insects, applied a disinfectant in the bathroom, dusted roses, put chlorine in a swimming pool, or applied lawn care chemicals. Commercial establishments using cleansers and other cleaning solvents which are pesticides might need to post continuously.

We at CPDA favor an amendment to Section 24 (A) of FIFRA to prevent local jurisdictions from regulating the sale and use of pesticides. With this amendment included, Section 24 (A) would read as follows: "A State, <u>but no political subdivision of a state</u> may regulate the sale and use of any federally registered pesticide..."

In conclusion, there are many critical issues facing the lawn care industry today. On behalf of CPDA, I thank you for the opportunity to appear before you today to discuss some of these issues. We look forward to working with you in the months ahead on these and other related lawn care pesticide issues.

APPENDIX A

MAJOR LAWN PESTICIDES

Herbicides

1. Atrazine[1,2]
2. Balan[1]
3. Betasan[1]
4. 2,4-D[1,2]
5. Dacthal[1,2]
6. Dicamba[1,2]
7. DSMA
8. Endothall[1]
9. Glyphosate[1,2]
10. MCPA[1,2]
11. MCPP
12. MSMA
13. Oxadiazon[1]
14. Pronamide[1,2]
15. Siduron

Insecticides

1. Acephate[1,2]
2. Baygon
3. Bendiocarb[1,2]
4. Carbaryl[1,2]
5. Chlorpyrifos[1,2]
6. DDVP[1]
7. Diazinon[1]
8. Malathion[1,2]
9. Methoxychlor[1]
10. Oftanol[1]
11. Trichlorfon[2]
12. Triumph[1]

Fungicides

1. Bayleton[1]
2. Benomyl[1,2]
3. Chlorothalonil[1,2]
4. Diphenamid[1,2]
5. Maneb[1]
6. PCNB[1,2]
7. Sulfur[1,2]
8. Ziram[1]

[1] Chemical also has food or feed uses

[2] Registration Standard has been issued

Testimony of
Michael Gough, Ph.D.
Scientific Advisor
Task Force II on 2,4-D Research Data

before the

Subcommittee on Toxic Substances, Environmental Oversight,
Research and Development
of the
Committee on Environment and Public Works
United States Senate

March 28, 1990

Mr. Chairman and Members of the Committee, thank you for inviting me to appear on behalf of the Industry Task Force II on 2,4-D Research Data. I was a participant in a workshop convened by the Harvard University School of Public Health on October 17 through 19, 1989, which discussed possible linkages between exposures to 2,4-D and cancer, and I will report on that meeting and its conclusions in my remarks today.

For your information, I have attached a photocopy of the cover, a press release, and the first 10 and last 8 pages of the report of the worksnop to my testimony. The first 10 pages include the summary of the workshop and a roster of its participants, and the last 8 are the "Weight-of-the-Evidence Evaluation." Although my remarks are based on the information that is included in the photocopies, they are more extensively supported by information in the body of the report, and a copy of the report has been given to the Committee.

The workshop, which had the rather long title "The Weight of the Evidence on the Human Carcinogenicity of 2,4-D," was sponsored by the National Associaton of Wheat Growers through a grant from the Industy Task Force on 2,4-D Research Data, a group of six companies sponsoring ongoing research about the possible health effects of 2,4-D. Although industry funds supported the workshop, the workshop convener, Dr. John D. Graham, had a free hand to select and invite workshop participants. The roster of participants, which appears on pages 9 and 10 of the attachment, shows that 6 of the 13 participants have academic affiliations, one was a State employee, two were Federal employees, one an employee of a 2,4-D manufacturer, one (formerly a Federal employee) is a consultant, one directs the Canadian Center for Toxicology, and I am employed at Resources for the Future, a non-profit foundation here in Washington. All of the participants are experienced in the epidemiology, toxicology, or regulation of the class of pesticides called phenoxyherbicides, which includes 2,4-D.

We reviewed the world's published literature, as well as some not-yet-published literature about 2,4-D with the goal of weighing all the evidence to arrive at a conclusion about the possible human carcinogenicity of the herbicide. We concluded that "workshop particpants were not convinced that a cause-effect relationship between exposure to 2,4-D and human cancer exists."[1] That conclusion, important as it is for the deliberations of this Committee, does not

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1. The Weight of the Evidence on the Human Carcinogenicity of 2,4-D. p. 56. (hereafter referred to as "Workshop Report").

capture the vast store of information available about 2,4-D, and I will briefly recount some of that now.

The herbicide 2,4-D was developed during World War II and found widepread use from the late 1940s on. It is relatively inexpensive, is only moderately toxic according to criteria developed by the World Health Organization, and is effective against broad leaf plants--most weeds--while having no effect on other, desirable plants such as wheat, rice, grasses, and conifers. It has been widely used for over 40 years.

In recent years, some epidemiologic studies have suggested associations between exposures to phenoxyherbicides and various forms of cancer. About a decade ago, a Swedish research team reported linkages between exposures of forestry workers to phenoxyherbicides and three relatively uncommon forms of cancer.[2] Since then, other epidemiologic studies have not supported two of the associations, and neither of those is now accorded much or any credence. The remaining association, between 2,4-D and non-Hodgkin's lymphoma (NHL) is still under investigation.

A National Cancer Institute (NCI) study in 1986 reported an association between exposures to phenoxyherbicides and NHL in Kansas

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2. Hardell, L., M. Eriksson, P. Lenner, and E. Lundgren. 1981. Malignant lymphoma and exposure to chemicals, especially organic solvents, chlorophenols and phenoxyacids: A case-control study. British Journal of Cancer 43:169-176.
Hardell, L. and A. Sandstrom. 1979. Case-control study: Soft tissue sarcomas and exposure to phenoxyacetic acids or chlorophenols. British Journal of Cancer 39:711-717.

farmers.[3] Because 2,4-D was the phenoxyherbicide most used in Kansas, it could be hypothesized that that chemical was the cause of the increased risk of NHL. NCI scientists investigated that possibility in a study of NHL in Nebraska farmers. Dr. Zahm discussed the results of that study, which have not yet been published, earlier today.

Contrary to what I would have expected if 2,4-D is responsible for the excess of NHL in Kansas farmers, the risk of NHL in Nebraska farmers exposed to 2,4-D was less than that for Kansas farmers, who had been exposed to phenoxyherbicides of all kinds. In fact, none of the excess risks detected in the Nebraska farmers was statistically significant, which simply means that the apparent association between 2,4-D and NHL in that study could have resulted from chance.

The workshop participants reviewed the Kansas and Nebraska studies along with about 10 other studies that have been published since the Swedish studies. None of the other studies reported an association between 2,4-D and NHL or any other cancer.

The possible carcinogenicity of 2,4-D has been investigated in several animal tests. No excess cancers were detected in either male or female mice or in female rats, but there was an excess of brain tumors in male rats. Since there is no reason to believe that 2,4-D

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3. Hoar, S.K., A. Blair, F.A. Holmes, et al. 1986. Agricultural herbicide use and risk of lymphoma and soft tissue sarcoma. Journal of the American Medical Association 256:1141-1147 and correction of an incorrect table title in the same jouranl at 256:3351.

would have different biological effects in males as compared to females, it is possible that the excess of brain tumors in male rats was unrelated to 2,4-D. EPA has already requested additional animal tests to clarify this issue.

Basing its judgment on the currently available evidence, the workshop concluded that "The toxicology of 2,4-D by itself provides little reason to expect that 2,4-D is carcinogenic in humans."[4] This conclusion parallels that of the International Agency for Research on Cancer, which found that there was inadequate evidence to conclude that 2,4-D is an animal carcinogen. To summarize the animal data, it provides little support to the idea that 2,4-D is a carcinogen.

The Workshop participants noted that other epidemiologic studies will be completed in the near future. It can be expected, based on what has been found in studies published to data, that some of the not-yet-published studies will report no associaton between 2,4-D and human cancers. Certainly the NCI's Nebraska study will report an association, and others may as well. Such studies will strengthen or weaken the evidence for possible associations, but merely carrying out more studies using techniques that have already been employed will not resolve the inconsistencies that we see. In addition, we need analyses of the methods that have been used in the various studies and evaluation of their strengths and weaknesses. The Task Force has decided to fund such an analysis proposed by Dr. Jack Mandel of the University of Minnesota School of Public Health. When complete, it

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4. Workshop Report. p. 53.

will shed light on the methods and results of studies and improve our ability to interpret studies already done and yet-to-be-published.

I will close by pointing out that both of NCI's studies--the one in Kansas and the one in Nebraska--show that the use of routine precautions in handling 2,4-D reduces the level of risk, whatever it may be. Those precautions include the use of gloves, wearing of long sleeved shirts and trousers, and changing clothes after working with the chemical. The Workshop participants also noted that occasional use of 2,4-D by a home gardener results in much lower exposures than those experienced by agricultural workers.

In summary, the Workshop participants concluded, in Dr. Graham's words, "that a cause-and-effect relationship between 2,4-D and cancer is far from being established."[5]

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5. Press Release included under cover of Workshop Report.